

INTERNAL MEDICINE

2015

SAUDI BOARD INTERNAL MEDICINE CURRICULUM



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Preparation

Curriculum Scientific Group	PROF. ABDULLAH SALEH SHATOOR
	DR. MOHAMMED AL FAIFI
	DR. FAHAD IBRAHIM AL SOHAIBANI

Supervision

Curriculum Specialists	
	DR. AMIN ZUBAIR
	DR. ALSHAMARRI SAMI

Reviewed and Approved

Internal Medicine Scientific Council			
	DR. YOUSEF MOHAMMAD AL SALEH	PROF. SAAD SALEH ALSHOHAIB	BRIG.GEN DR.MOHAMMAD HUSSEIN ALFIFI
	PROF. ABDULLAH SALEH SHATOOR AL- GHAMDI	PROF. ABDULLAH KHALAF ALHWIESH	DR. SAFWAN AHMED ZATARI
	DR. FAHAD IBRAHIM ALSOHABANI	DR.TARIG SALEH ABDULLAH AL KHUWAITIR	DR . ABDULAZIZ A NWASSER ALHERAIQI
	DR . KHALID AIDA ALSWAT	DR .TAWFIK KHALID ALBASSAM	DR. SULAIMAN AHMED KARSOU

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P.O. Box: 94656
Postal Code: 11614
Contact Center: 920019393

Website: www.scfhs.org.sa

Designed and formatted:
SALEM M ALTAMIMI (SCHS)

Contents

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INTRODUCTION

The goal of postgraduate medical education is to produce the best possible physicians who practice safely and meet the healthcare needs of society. Medical educators, trainees, patients, and society recognize that being well trained in the scientific aspects of medicine is necessary but insufficient for effective medical practice; a good doctor must draw upon a wide array of knowledge and skills. *The Canadian Medical Education Directives for Specialists* (CanMEDS) framework, which is applied in postgraduate training programs in many countries, offers a model of physician competencies that emphasizes not only medical expertise but also multiple additional nonmedical expert roles that aim to serve society's needs competently. Therefore, the Saudi Commission for Health Specialties (SCFHS) is adopting the CanMEDS framework to establish a core curriculum for all training programs including that of the Saudi Board Certification in Internal Medicine. Therefore, as a physician, you will function within the seven CanMEDS roles, namely medical expert, communicator, collaborator, manager, health advocate, scholar, and professional.

The Saudi board program of internal medicine consists of four years of full-time supervised residency training in internal medicine and its branches, in addition to the emergency and critical care areas. The training institution must be accredited by the SCFHS to offer Saudi Board program in Internal Medicine. Comprehensive training that includes inpatients, ambulatory care, and the emergency department will be offered. Trainees will be actively involved in patient care, with responsibility increasing as further experience and competence are gained. Trainees must adhere to the rules and regulations of the training program. Upon successful completion of the program, trainees will be awarded the "**Saudi Board in Internal Medicine**" qualification.

SPECIFIC LEARNING OBJECTIVES CanMEDS PHYSICIAN COMPETENCY FRAMEWORK

The learning objectives of these seven CanMEDS physician competencies and mastery of the topics are incorporated into the program at the various academic activity venues.

1. Medical expert:

Definition:
As *medical experts*, physicians integrate all of the CanMEDS roles, applying medical knowledge, clinical skills, and professional attitudes to the provision of patient-centered care. The role of medical expert is the physician's central role in the CanMEDS framework.

Description:
Physicians possess a defined body of knowledge, clinical skills, procedural skills, and professional attitudes, which are directed toward effective patient-centered care. They apply these competencies to collect and interpret information, make appropriate clinical decisions, and conduct diagnostic and therapeutic interventions. This is done within the boundaries of their disciplines and personal expertise, healthcare settings, patients' preferences, and the context of patients' complaints. The care offered by the physician is characterized by up-to-date, ethical, and resource-efficient clinical practice, with effective communication in partnership with patients, other healthcare providers, and the community. The role of medical expert is central to the function of physicians and draws on the competencies included in the roles of communicator, collaborator, manager, health advocate, scholar, and professional.

Elements:
- Integration and application of all CanMEDS roles for patient care
- Core medical knowledge
- Patient problem identification
- Diagnostic reasoning
- Clinical judgment
- Clinical decision making
- Application of appropriate therapies
- Procedural skill proficiency

• Humane care
• Application of ethical principles for patient care
• Functioning as a consultant
• Knowing the limits of one's expertise
• Maintenance of competence
• Principles of patient safety and avoiding adverse events

Key Competencies:

Physicians are able to…

1. Function effectively as consultants, integrating all of the CanMEDS roles to provide optimal, ethical, and patient-centered medical care
2. Establish and maintain clinical knowledge, skills, and attitudes appropriate to practice
3. Perform complete and appropriate assessment of patients
4. Use preventive and therapeutic interventions effectively
5. Demonstrate proficient and appropriate use of diagnostic and therapeutic procedural skills
6. Seek appropriate consultation from other health professionals, recognizing the limits of their own expertise

Enabling Competencies:

Physicians are able to...

1. Function effectively as consultants, integrating all of the CanMEDS roles to provide optimal, ethical, and patient-centered medical care

- 1.1. Perform consultations, including the presentation of well-documented assessments and recommendations in written and/or verbal form in response to requests from other healthcare professionals, effectively
- 1.2. Demonstrate effective use of all CanMEDS competencies relevant to practice
- 1.3. Identify and respond appropriately to relevant ethical issues arising in patient care
- 1.4. Prioritize professional duties effectively and appropriately when faced with multiple patients and problems
- 1.5. Demonstrate compassionate patient-centered care
- 1.6. Recognize and respond to the ethical dimensions of medical decision making
- 1.7. Demonstrate medical expertise in situations other than patient care, such as those involving the provision of expert legal testimony or advice to governments, as required

2. Establish and maintain clinical knowledge, skills, and attitudes appropriate to practice

- 2.1. Apply knowledge of the clinical, sociobehavioral, and fundamental biomedical sciences relevant to physicians' specialties

2.2. Describe the RCPSC framework for competencies relevant to physicians' specialties
2.3. Apply lifelong learning skills relevant to the role of scholar, implementing a personal program to remain abreast of current issues and enhance areas of professional competence
2.4. Contribute to the enhancement of quality care and patient safety in practice, integrating the best evidence and practices available

3. Perform complete and appropriate assessments of patients

3.1 Identify and explore issues requiring attention, including the patient's preferences and the context of his or her complaint, effectively during patient encounters
3.2 Elicit a history that is relevant, concise, and accurate with respect to the context of the patient's complaint and his or her preferences, for the purposes of prevention, health promotion, diagnosis, and/or management
3.3 Perform a focused physical examination that is relevant and accurate for the purposes of prevention, health promotion, diagnosis, and/or management
3.4 Select medically appropriate investigative methods in a resource-effective and ethical manner
3.5 Demonstrate effective clinical problem solving and judgment, including the interpretation of available data and integration of information to generate differential diagnoses and management plans, to address patient problems

4. Use preventive and therapeutic interventions effectively

4.1 Implement effective management plans in collaboration with patients and their families
4.2 Demonstrate effective, appropriate, and timely application of preventive and therapeutic interventions relevant to physicians' practice
4.3 Ensure that appropriate informed consent is obtained for therapy
4.4 Ensure that patients receive appropriate end-of-life care

5. Demonstrate proficient and appropriate use of diagnostic and therapeutic procedural skills

5.1 Demonstrate effective, appropriate, and timely performance of diagnostic procedures relevant to practice
5.2 Demonstrate effective, appropriate, and timely performance of therapeutic procedures relevant to practice
5.3 Ensure that appropriate informed consent is obtained for procedures
5.4 Demonstrate appropriate documentation and dissemination of information related to the procedures performed and their outcomes

5.5 Ensure that adequate follow-up is arranged for the procedures performed

6. Seek appropriate consultation from other health professionals, recognizing the limits of their own expertise

6.1 Demonstrate insight into the limitations of their own expertise via self-assessment

6.2 Demonstrate effective, appropriate, and timely consultation of another health professional for optimal patient care as required

6.3 Arrange appropriate follow-up care services for patients and their families

2. Communicator:

Definition:

As *communicators*, physicians effectively facilitate the doctor–patient relationship and the dynamic exchanges that occur before, during, and after medical encounters.

Description:

Physicians enable patient-centered therapeutic communication via shared decision making and effective dynamic interactions with patients, families, caregivers, fellow professionals, and other stakeholders in healthcare. The competencies of this role are essential to the establishment of rapport and trust, the formulation of diagnoses, delivery of information, striving for mutual understanding, and the facilitation of shared care plans. Poor communication can lead to undesirable results, and effective communication is critical for optimal patient outcomes. The application of these communication competencies and the nature of the doctor–patient relationship vary according to specialty and type of medical practice.

Elements:

- Patient-centered approach to communication
- Rapport, trust, and ethics in the doctor-patient relationship
- Therapeutic relationships with patients, patients' families, and caregivers
- Diverse doctor–patient relationships for different types of medical practice
- Shared decision making
- Concordance
- Mutual understanding
- Empathy
- Capacity for compassion, trustworthiness, and integrity
- Flexibility in the application of skills
- Interactive processes
- Relational competence in interactions
- Eliciting and synthesizing information for patient care
- Efficiency

• Accuracy
• Conveying effective oral and written information for patient care
• Effective listening
• Use of expert verbal and nonverbal communication
• Respect for diversity
• Attention to the psychosocial aspects of illness
• Breaking bad news
• Addressing end-of-life issues
• Disclosure of errors or adverse events
• Informed consent
• Capacity assessment
• Appropriate documentation
• Public and media communication where appropriate

Key Competencies:

Physicians are able to…

1. Develop rapport, trust, and ethical therapeutic relationships with patients and their families
2. Elicit and synthesize relevant information and the perspectives of patients, patients' families, colleagues, and other professionals accurately
3. Convey relevant information and explanations to patients, patients' families, colleagues, and other professionals accurately
4. Develop a common understanding of issues, problems, and plans with patients, patients' families, colleagues, and other professionals to develop shared care plans
5. Convey effective oral and written information regarding medical encounters

Enabling Competencies:

Physicians are able to...

1. Develop rapport, trust, and ethical therapeutic relationships with patients and their families

- 1.1. Recognize that being a good communicator is a core clinical skill for physicians, and effective physician-patient communication can foster patient satisfaction, physician satisfaction, adherence, and improved clinical outcomes
- 1.2. Establish positive therapeutic relationships, characterized by understanding, trust, respect, honesty, and empathy, with patients and their families
- 1.3. Respect patient confidentiality, privacy, and autonomy
- 1.4. Listen effectively
- 1.5. Be aware of and responsive to nonverbal cues

1.6. Effectively facilitate structured clinical encounters

2. Elicit and synthesize relevant information and the perspectives of patients, patients' families, colleagues, and other professionals accurately

2.1. Gather information regarding diseases but also consider patients' beliefs, concerns, expectations, and experiences of illness

2.2. Seek out and synthesize relevant information from other sources such as patients' families, caregivers, and other professionals

3. Convey relevant information and explanations to patients, patients' families, colleagues, and other professionals accurately

3.1. Deliver information to patients, patients' families, colleagues, and other professionals in a humane manner that it is understandable and encourages discussion and participation in decision making

4. Develop a common understanding of issues, problems, and plans with patients, patients' families, and other professionals to develop shared care plans

4.1. Identify and explore problems that require attention, including the context of the patient's complaint and his or her responses, concerns, and preferences, effectively during patient encounters

4.2. Respect diversity and differences, including but not limited to the impact of gender, religion, and cultural beliefs on decision making

4.3. Encourage discussion, questions, and interaction during encounters

4.4. Engage patients, patients' families, and relevant healthcare professionals in shared decision making to develop a care plans

4.5. Effectively address challenging communication issues, such as obtaining informed consent; delivering bad news; and addressing anger, confusion, and misunderstanding

5. Convey effective oral and written information regarding medical encounters

5.1. Maintain clear, accurate, and appropriate records (e.g., written or electronic) of clinical encounters and plans

5.2. Present verbal reports of clinical encounters and plans effectively

5.3. When appropriate, present medical information regarding medical issues to the public or media effectively

3. Collaborator:

Definition:

As *collaborators*, physicians work effectively within healthcare teams to achieve optimal patient care.

Description:
Physicians work in partnership with others who are appropriately involved in the care of individuals or specific groups of patients. This is increasingly important in modern multiprofessional environments, where the goal of patient-centered care is widely shared. Modern healthcare teams not only include groups of professionals working closely together at one site, such as a ward team, but also extended to teams with a variety of perspectives and skills in multiple locations. It is therefore essential that physicians are able to collaborate effectively with patients, families, and interprofessional teams of expert healthcare professionals to provide optimal care, education, and scholarship.

Elements:
- Collaborative care, culture, and environment
- Shared decision making
- Sharing knowledge and information
- Delegation
- Effective teams
- Respect for other physicians and members of healthcare teams
- Respect for diversity
- Team dynamics
- Leadership based on patient needs
- Constructive negotiation
- Conflict resolution, management, and prevention
- Organizational structures that facilitate collaboration
- Understanding roles and responsibilities
- Recognizing one’s own roles and limits
- Effective consultation with respect to collaborative dynamics
- Effective collaboration between primary care providers and specialists
- Collaboration with community agencies
- Community in practice
- Interprofessional healthcare
- Multiprofessional healthcare
- Learning together
- Gender issues

Key Competencies:
Physicians are able to…
1. Participate effectively and appropriately in interprofessional healthcare teams
2. Work effectively with other health professionals to prevent, negotiate, and resolve interprofessional conflict

Enabling Competencies:
Physicians are able to...

1. Participate effectively and appropriately in interprofessional healthcare teams

1.1. Describe their roles and responsibilities to other professionals clearly

1.2. Describe the roles and responsibilities of other professionals within the healthcare team

1.3. Recognize and respect the diversity of the roles, responsibilities, and competences of other professionals in relation to their own

1.4. Work with others to assess, plan, provide, and integrate care for individual patients (or groups of patients)

1.5. Where appropriate, work with others to assess, plan, provide, and review other tasks such as research problems, educational work, program reviews, or administrative responsibilities

1.6. Participate in interprofessional team meetings effectively

1.7. Enter into interdependent relationships with other professionals to provide quality care

1.8. Describe the principles of team dynamics

1.9. Respect team ethics including confidentiality, resource allocation, and professionalism

1.10. Where appropriate, demonstrate leadership in healthcare teams

2. Work effectively work with other health professionals to prevent, negotiate, and resolve interprofessional conflict

2.1. Demonstrate a respectful attitude toward other colleagues and members of interprofessional teams

2.2. Work with other professionals to prevent conflict

2.3. Employ collaborative negotiation to resolve conflict

2.4. Respect differences, misunderstandings, and limitations in other professionals

2.5. Recognize one's own differences, misunderstandings, and limitations, which may contribute to interprofessional tension

2.6. Reflect on interprofessional team function

4. Manager:

Definition:

As *managers,* physicians are integral participants in healthcare organizations, organizing sustainable practices, making decisions regarding the allocation of resources, and contributing to the effectiveness of the healthcare system.

Description:

Physicians interact with their work environments as individuals, members of teams or groups, and participants in the healthcare system at local, regional, or national levels. The balance of emphasis between these three levels varies depending on the nature of the

specialty, but all specialties have explicitly identified management responsibilities as a core requirement of the practice of medicine in their disciplines. Physicians function as managers in everyday practice activities involving coworkers, resources, and organizational tasks such as implementing care processes and policies and balancing their personal lives. Therefore, physicians require the ability to prioritize, execute tasks in collaboration with colleagues effectively, and make systematic choices when allocating scarce healthcare resources. The CanMEDS management role describes the active engagement of all physicians as integral participants in decision making in the operation of the healthcare system.

Elements:

- Physicians as active participants in the healthcare system
- Physicians' roles and responsibilities in the healthcare system
- Collaborative decision making
- Quality assurance and improvement
- Organizing, structuring, and financing the healthcare system
- Managing change
- Leadership
- Supervising others
- Administration
- Consideration of justice, efficiency, and effectiveness in the allocation of finite healthcare resources for optimal patient care
- Budgeting and finance
- Priority setting
- Practice management to maintain sustainable practice and physician health
- Health human resources
- Time management
- Physician remuneration options
- Negotiation
- Career development
- Information technology for healthcare
- Effective meetings and committees

Key Competencies:

Physicians are able to…

1. Participate in activities that contribute to the effectiveness of healthcare organizations and systems
2. Manage their practice and careers effectively
3. Allocate finite healthcare resources appropriately
4. Serve in administration and leadership roles as appropriate

Enabling Competencies:

Physicians are able to...

1. Participate in activities that contribute to the effectiveness of healthcare organizations and systems

1.1. Work collaboratively with others in organizations

1.2. Participate in systemic quality process evaluation and improvement such as that involving patient safety initiatives

1.3. Describe the structure and function of the healthcare system as it relates to specialties, including the roles of physicians

1.4. Describe the principles of healthcare finance including physician remuneration, budgeting, and organizational funding

2. Manage their practice and careers effectively

2.1. Establish priorities and manage time to balance patient care, practice requirements, outside activities, and personal life

2.2. Manage practice finances and human resources

2.3. Implement processes to ensure personal practice improvement

2.4. Employ information technology appropriately in patient care

3. Allocate finite healthcare resources appropriately

3.1. Recognize the importance of the just allocation of healthcare resources, balancing effectiveness, efficiency, and access in optimal patient care

3.2. Apply evidence and management processes to provide cost-appropriate care

4. Serve in administration and leadership roles as appropriate

4.1. Chair or participate in committees and meetings effectively

4.2. Lead or implement changes in healthcare

4.3. Plan the relevant elements of healthcare delivery (e.g., work schedules)

5. Health Advocate:

Definition:

As *health advocates,* physicians use their expertise and influence responsibly to advance the health and well-being of individual patients, communities, and populations.

Description:

Physicians recognize their duties and abilities in improving the overall health of their patients and the society they serve. Doctors identify advocacy activities as important to the individual patient, populations of patients, and communities. Individual patients need physicians to assist them in navigating the healthcare system and accessing appropriate healthcare resources in a timely manner. Communities and societies need physicians'

special expertise to identify and address broad health issues and the determinants of health collaboratively. At this level, health advocacy involves efforts to change specific practices and policies on behalf of those served. Framed in this multilevel manner, health advocacy is an essential and fundamental component of health promotion. Health advocacy is expressed appropriately by both the individual and collective actions of physicians to influence public health and policy.

Elements:

- Advocacy for individual patients, populations, and communities
- Health promotion and disease prevention
- Determinants of health including psychological, biological, social, cultural, and economic factors
- Fiduciary duty of care
- The medical profession's role in society
- Responsible use of authority and influence
- Mobilizing resources as required
- Adapting practice, management, and education to the needs of individual patients
- Patient safety
- Principles and implications of health policy
- Interactions with other CanMEDS roles and competencies in advocacy

Key Competencies:

Physicians are able to…

1. Respond to individual patients' health needs and issues as part of patient care
2. Respond to the health needs of the communities that they serve
3. Identify the determinants of health in the populations that they serve
4. Promote the health of individual patients, communities, and populations

Enabling Competencies:

Physicians are able to...

1. Respond to individual patient health needs and issues as part of patient care

1.1. Identify the health needs of individual patients

1.2. Identify opportunities for advocacy, health promotion, and disease prevention for individuals to whom care is provided

2. Respond to the health needs of the communities that they serve

2.1. Describe the practice communities that they serve

2.2. Identify opportunities for advocacy, health promotion, and disease prevention in the communities that they serve and respond appropriately

2.3. Appreciate the possibility of competing interests between the communities served and other populations

3. Identify the determinants of health for the populations that they serve

3.1. Identify the determinants of health in the population, including barriers to accessing care and resources

3.2. Identify vulnerable or marginalized populations within those served and respond appropriately

4. Promote the health of individual patients, communities, and populations

4.1. Describe approaches to the implementation of changes to the determinants of health in the populations served

4.2. Describe how public policy affects the health of the populations served

4.3. Identify points of influence in the healthcare system and its structure

4.4. Describe the ethical and professional issues, including altruism, social justice, autonomy, integrity, and idealism, inherent in health advocacy

4.5. Appreciate the possibility of conflict inherent in the role of health advocate for a patient or community with that of manager or gatekeeper

4.6. Describe the role of the medical profession in collectively advocating health and patient safety

6. Scholar:

Definition:

As *scholars*, physicians demonstrate lifelong commitment to reflective learning and the creation, dissemination, application, and translation of medical knowledge.

Description:

Physicians engage in the lifelong pursuit of mastery of their domains of expertise. As learners, they recognize the need to be learning continually and model this for others. Through their scholarly activities, they contribute to the creation, dissemination, application, and translation of medical knowledge. As teachers, they facilitate the education of students, patients, colleagues, and others.

Elements:

- Lifelong learning
- Moral and professional obligation to maintain competence and stand accountable
- Reflection on all aspects of practice
- Self-assessment
- Identifying gaps in knowledge
- Asking questions regarding effective learning
- Accessing information for practice
- Critical appraisal of evidence
- Evidence-based medicine
- Translating knowledge (evidence) into practice

- Translating knowledge into professional competence
- Enhancing professional competence
- Using a variety of learning methodologies
- Principles of learning
- Role modeling
- Assessing learners
- Providing feedback
- Mentoring
- Teacher-student ethics, power issues, confidentiality, and boundaries
- Learning together
- Communities of practice
- Research and scientific inquiry
- Research ethics, disclosure, conflicts of interest, human subjects, and industry relations

Key Competencies:

Physicians are able to…

1. Maintain and enhance professional activities via ongoing learning
2. Critically evaluate information and its sources and apply this to practice decisions appropriately
3. Facilitate learning in patients, patients' families, students, residents, other health professionals, the public, and others as appropriate
4. Contribute to the creation, dissemination, application, and translation of new medical knowledge and practices

Enabling Competencies:

Physicians are able to...

1. Maintain and enhance professional activities via ongoing learning

1.1. Describe the principles of competence maintenance
1.2. Describe principles and strategies for implementing a personal knowledge management system
1.3. Recognize and reflect on learning issues in practice
1.4. Conduct personal practice audits
1.5. Pose an appropriate learning question
1.6. Access and interpret relevant evidence
1.7. Integrate new learning into practice
1.8. Evaluate the impact of changes to practice
1.9. Document the learning process

2. Critically evaluate medical information and its sources and apply them to practice decisions appropriately

2.1. Describe the principles of critical appraisal
2.2. Critically appraise retrieved evidence in order to address clinical questions

2.3. Integrate critical appraisal conclusions into clinical care

3. Facilitate learning in patients, patients' families, students, residents, other health professionals, the public, and others as appropriate

3.1. Describe the principles of learning that are relevant to medical education
3.2. Collaboratively identify the learning needs and desired learning outcomes of others
3.3. Select effective teaching strategies and content to facilitate others' learning
3.4. Demonstrate effective lectures and presentations
3.5. Assess and reflect on teaching encounters
3.6. Provide effective feedback
3.7. Describe the principles of ethics with respect to teaching

4. Contribute to the development, dissemination, and translation of new knowledge and practices

4.1. Describe the principles of research and scholarly inquiry
4.2. Describe the principles of research ethics
4.3. Pose scholarly questions
4.4. Conduct systematic searches for evidence
4.5. Select and apply appropriate methods for addressing questions
4.6. Appropriately disseminate the findings of studies

7. Professional:

Definition:

As *professionals*, physicians are committed to the health and well-being of individuals and society via ethical practice, profession-led regulation, and high personal standards of behavior.

Description:

Physicians have a unique societal role as professionals dedicated to the health and care of others. Their work requires the mastery of a complex body of knowledge and skills and the art of medicine. As such, the role of a professional is guided by codes of ethics and commitment to clinical competence, embracing appropriate attitudes and behaviors, integrity, altruism, personal well-being, and the promotion of the public good within the domain. This commitment forms the basis of a social contract between the physician and society. In return, society grants physicians the privilege of profession-led regulation on the understanding that they are accountable to those served.

Elements:

- Altruism
- Integrity and honesty
- Compassion and caring

- Morality and codes of behavior
- Responsibility to society
- Responsibility to the profession, which includes peer review obligations
- Responsibilities to oneself, which includes personal care, in order to serve others
- Commitment to excellence in clinical practice and mastery of the discipline
- Commitment to the promotion of the public good in healthcare
- Accountability to professional regulatory authorities
- Commitment to professional standards
- Bioethical principles and theories
- Medicolegal frameworks that govern practice
- Self-awareness
- Sustainable practice and physician health
- Self-assessment
- Disclosure of errors and adverse events

Key Competencies:

Physicians are able to…

1. Demonstrate commitment to patients, the profession, and society via ethical practice
2. Demonstrate commitment to patients, the profession, and society via participation in profession-led regulation
3. Demonstrate commitment to physician health and sustainable practice

Enabling Competencies:

Physicians are able to...

1. Demonstrate commitment to patients, the profession, and society via ethical practice

1.1. Exhibit appropriate professional behaviors, including honesty, integrity, commitment, compassion, respect, and altruism, in practice

1.2. Demonstrate commitment to delivering the highest quality of care and maintenance of competence

1.3. Recognize and respond appropriately to ethical issues encountered in practice

1.4. Manage conflicts of interest appropriately

1.5. Recognize the principles and limits of patient confidentiality defined by professional practice standards and the law

1.6. Maintain appropriate relationships with patients

2. Demonstrate commitment to patients, the profession, and society via participation in profession-led regulation

2.1. Appreciate professional, legal, and ethical codes of practice

2.2. Fulfill the regulatory and legal obligations required in current practice

2.3. Demonstrate accountability to professional regulatory bodies

2.4. Recognize and respond to others' unprofessional behaviors in practice
2.5. Participate in peer review

3. Demonstrate commitment to physician health and sustainable practice

3.1. Balance personal and professional priorities to ensure personal health and sustainable practice
3.2. Strive to heighten personal and professional awareness and insight
3.3. Recognize other professionals in need and respond appropriately

Reference:

The CanMEDS 2005 Physician Competency Framework, edited by Jason R. Frank;

STRUCTURE OF THE TRAINING PROGRAM

STRUCTURE OF THE TRAINING PROGRAM

ROTATIONS

The Saudi board program in internal medicine consists of four years of full-time supervised residency training in internal medicine and its branches in addition to the emergency and critical care areas. The training institution must be accredited by the SCFHS to offer a Saudi Specialty Certificate in Internal Medicine. Training in each rotation must be comprehensive and includes inpatients, ambulatory care, and the emergency department. As trainees gain experience and competence, their responsibilities will continue to increase, and they will be actively involved in teaching junior residents and other colleagues in addition to providing patient care.

The Saudi Board in Internal Medicine Residency Training Program is divided into two levels; junior and senior, each consisting of 2 years of training. **The roadmap for the rotations, depicted below, must be followed strictly. However, the sequence of rotations within each level can be manipulated according to need.**

The following are the rotations and job descriptions for each level:

Junior Level (R1–R2)

- Minimum training requirements at the junior level (R1–R2)
    1. A minimum of 24 weeks' rotation in general internal medicine.
    2. A minimum of 8 weeks' rotation in each of the following:
        a. Emergency department
        b. Critical care medicine
        c. Cardiology, including the coronary care unit
        d. Pulmonary medicine
        e. Gastroenterology
        f. Nephrology
    3. Four weeks in each of the following:
        a. Endocrinology
        b. Infectious disease
        c. Rheumatology
        d. Neurology
    4. Up to 8 weeks of electives in one of the following:
        a. Geriatrics
        b. Dermatology
        c. Allergy and immunology
        d. Clinical genetics

e. Psychiatry
f. Palliative care
g. Radiology
h. Hajj duty

Job description for junior residents:

1. Elicit a comprehensive history and perform a complete physical examination on admission; record the patient’s assessment, differential diagnosis, and medical problems clearly; and initiate a management plan.
2. Discuss the management plan, including investigations and a treatment plan, with the trainee’s senior and communicate the plan to the nurse assigned to the patient’s care.
3. Attend to all patient complaints and concerns, follow up results of investigations daily, record problem-oriented progress notes daily, and update the patient’s problem list.
4. Attend to consultations, including those of the emergency department, within and outside the department.
5. Once or twice per week, participate in outpatient clinics in the specialties to which the resident is assigned under the supervision of consultants. Residents are not expected to cover clinics without consultant supervision.
6. Perform the basic procedures necessary for diagnosis and management.
7. Present patients on daily rounds and assign all sick patients to the on-call team.
8. Ensure that the following discharge orders are placed in the patient’s chart in a timely manner: discharge medications, follow-up appointments, and investigations.
9. Write a timely and thorough discharge summary.
10. Participate in departmental and section activities and the presentation of cases in the morning report, grand rounds, and all educational activities.
11. Participate in on-call duties according to the rules and regulations of the SCFHS.

Senior Level (R3–R4)

- Minimum training requirements at the senior level (R3–R4)
  1. A minimum of 16 weeks' rotation in general internal medicine, including community-based medicine
  2. A minimum of 8 weeks' rotation in each of the following:
     a. Cardiology
     b. Gastroenterology
     c. Endocrinology and metabolism
     d. Hematology
     e. Neurology
     f. Infectious disease
     g. Rheumatology
  3. Four weeks in each of the following:
     a. Neurology
     b. Critical care unit
     c. Pulmonary medicine
     d. Nephrology
     e. Oncology
  4. Up to 8 weeks of electives in one of the following:
     a. Palliative care
     b. Ambulatory care
     c. Research
     d. Geriatrics
     e. Dermatology
     f. Allergy and immunology
     g. Clinical genetics
     h. Psychiatry
     i. Radiology
     j. Hajj duty

Job description for seniors:

1. Review junior residents' admission notes and orders, discuss proposed management plans, and supervise their implementation.
2. Document the patient's history and clinical examination independently, supervise the progress notes of junior residents daily, and record progress notes in the chart at least three times per week.
3. Assist and supervise the junior residents in interpreting laboratory investigations and performing bedside diagnostic and therapeutic procedures during working hours and on-call duties.
4. Assist junior residents in acquiring computer skills to search the literature and follow evidence-based approaches to patient care.
5. Attend to consultations, including those of the emergency department, within and outside the department.

7. Once or twice per week, participate under the supervision of consultants in outpatient clinics in the specialties to which the resident is assigned. Residents are not expected to cover clinics without consultant supervision.
8. Participate in departmental and section activities.
9. Participate in the education and training of medical students, interns, and junior residents actively.
10. Produce timely and thorough reports for morbidity and mortality departmental meetings and specialty club meetings.
11. Participate in on-call duties according to the rules and regulations of the SCFHS.

ROTATIONS ROADMAP														
		01 Oct 28 Oct	**29 Oct 25 Nov**	**26 Nov 23 Dec**	**24 Dec 20 Jan**	**21 Jan 17 Feb**	**18 Feb 17 Mar**	**18 Mar 14 Apr**	**15 Apr 12May**	**13 May 09 Jun**	**10 Jun 07 Jul**	**08 Jul 04 Aug**	**05 Aug 01 Sep**	**02 Sep 30 Sep**
Junior	**R1**	GIM	GIM	ER	ER	ICU	ICU	Card.	Card.	Pul.	Pul.	GI	GI	Vac
	R2	Neph	Neph	Endo	ID	Rheu	Neur	GIM	GIM	GIM	GIM	Electi	Electi	Vac
Senior	**R3**	GIM	GIM	Endo	Endo	Hema	Hema	Neur	Neur	ID	ID	Rheu	Rheu	Vac
	R4	Card	Card	GIM	GIM	GI	GI	Neph	ICU	Pul.	Onco	Electi	Electi	Vac

MANDATORY CLINICAL ROTATIONS

GENERAL INTERNAL MEDICINE ROTATION

DURATION:
A minimum of 24 weeks' rotation at the junior level (R1–2)
A minimum of 16 weeks' rotation at the senior level (R3–4)

DESCRIPTION:
The general internal medicine rotation is mandatory and is the core rotation for all residents. Residents on rotation in general internal medicine departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of medical conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide R1–R2 trainees with a clearer focus during their training. Residents should view the list as representative and use it as a guide with which to further their learning.
The duration of the general internal medicine rotation is flexible and can be extended to 72 weeks, which are distributed throughout the 4-year training period.

OBJECTIVES:
The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of general medical conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and conditions listed below
- Order appropriate and selective investigations and interpret the findings in the context of patients' complaints
- Perform a complete health assessment that includes a focused physical examination and assessment of the patient's mental state

- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Provide immediate management to patients in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control
    - Documentation
    - Postprocedure follow up and handover
- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient’s condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Glucose metabolism disorders	-Diabetes mellitus -Diabetic ketoacidosis -Hyperosmolar state -Metabolic syndrome and obesity	-Diagnosis -Prevention of complications -Screening -Lifestyle modification -Dietary counseling -Nonpharmacological and pharmacological management -Prevention	RCC AHD CBL OBL
Hypertension	-Primary hypertension -Secondary hypertension -Hypertensive crisis	-Diagnosis -Classification -Evidence-based management -Complications	RCC AHD CBL OBL
Hypertension in Pregnancy	-Pregnancy-induced hypertension -Chronic hypertension -Pre-eclampsia -HELLP syndrome	-Recognition -Evidence-based management	AHD OBL RCC
Lipid disorders	-Primary (familial) hyperlipidemia -Secondary (acquired) hyperlipidemia -Metabolic syndrome	-Etiology -Screening -Clinical manifestation -Evaluation -Management	RCC AHD CBL OBL
Breathlessness	-Heart Failure -Asthma -COPD -ILD -Bronchiectasis -Pulmonary embolism -Pneumothorax -Pleural effusion	-Etiology -Diagnosis -Differential diagnosis -Assessment of severity -Pharmacological and nonpharmacological management -Prevention	OBL AHD CBL
Coughs, colds, and fever	-Community-acquired pneumonia -Hospital-acquired pneumonia -Aspiration pneumonia -Lung abscess	-Diagnosis -Risk factors -Complications -Treatment -Prevention	OBL AHD RCC

Fever in ambulatory settings	-Urinary tract infection -Gastroenteritis -Upper respiratory tract infection	-Diagnosis -Treatment	OBL
Fever in specific geographical areas/emerging infections	-Fever of unknown etiology -Malaria -Tuberculosis -Brucellosis -Visceral leishmaniasis -Rift Valley fever -Dengue fever -Swine flu -Coronavirus infection	-Definition -Risk factors -Diagnosis -Identification -Complications -Management -Reporting to appropriate authorities -Prevention	RCC AHD DCC
Chest pain	-Cardiac causes of chest pain - Ischemic heart disease - Pericardial disease - Aortic aneurism and dissection -Pulmonary causes of chest pain - Pleurisy - Pulmonary embolism - Pneumothorax -Gastrointestinal causes of chest pain - GERD - Esophageal spasm - Others -Musculoskeletal causes of chest pain - Tietze's syndrome - Others -Others	-Etiology -Classification -Manifestation -Diagnostic workup -Differential diagnosis -Complications -Management -Prevention	AHD RCC DCC OBL
Heart valve disorders	-Acute rheumatic fever -Infective endocarditis -Valvular disorders - Mitral stenosis	-Risk factors -Etiology -Clinical features -Diagnosis	AHD DCC RCC

	- Mitral regurgitation - Aortic stenosis - Aortic regurgitation - Tricuspid stenosis - Tricuspid regurgitation - Pulmonary stenosis - Pulmonary regurgitation	-Complications -Evidence-based management	
Palpitations	-Supraventricular arrhythmias including atrial fibrillation, atrial flutter, and atrial tachycardia -Ventricular arrhythmia -Heart blocks	-Etiology -Mechanisms -Risk factors -Manifestation -ECG recognition -Acute and chronic management -Prevention	AHD DCC RCC CBL
Skin, soft tissue, and bone infection	-Cellulitis -Necrotizing fasciitis -Acute and chronic osteomyelitis -Infectious arthritis	-Definition -Clinical features -Risk factors -Causative organisms Investigations -Diagnosis -Management -Evidence-based prophylaxis	AHD DCC OBL
Jaundice	-Viral hepatitis -Nonviral hepatitis -Chronic liver disease and cirrhosis	-Investigation -Prophylaxis -Treatment	AHD RCC DCC
Pallor (anemia)	-Iron deficiency anemia -Hemolytic anemia -Sickle cell anemia -Thalassemia -G6PD deficiency -Autoimmune hemolytic anemia -Spherocytosis, elliptocytosis -Megaloblastic anemia	-Presentation -Causes -Investigation -Complications and management	AHD RCC DCC

	-Aplastic anemia		
Sexually transmitted diseases	-Syphilis -HSV -Gonorrhea -Chlamydia	-Risk factors -Diagnosis -Reporting -Prevention	CBL AHD
Acute kidney injury	- Acute pyelonephritis - Acute glomerulonephritis - Acute interstitial nephritis - Acute tubular necrosis - Contrast induced nephropathy - Pigmented nephropathy - Thrombotic microangiopathy - Obstructive uropathy	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Acid-base imbalance	-Anion gap acidosis and nonanion gap acidosis (including renal tubular acidosis) -Alkalotic disorders	-Pathogenesis -Recognition -Associated conditions	AHD OBL
Water and electrolyte disturbances	-Hypo- and hypervolemia -Hypo- and hypernatremia -Hypo- and hyperkalemia -Hypo- and hypercalcemia	-Pathogenesis -Recognition -Immediate management	AHD OBL RCC
Diabetes in pregnancy	-Pre-existent diabetes in pregnancy -Gestational diabetes	-Screening -Complications -Evidence-based management	AHD OBL RCC
Thrombotic disorders in pregnancy	-Deep vein thrombosis -Sagittal vein thrombosis	-Recognition -Prophylaxis -Evidence-based management	AHD OBL RCC
Miscellaneous medical disorders in pregnancy	-Hypo- and hyperthyroidism -SLE and similar disorders -Inflammatory bowel disease -Asthma Epileptic disorders (medication controlled)	-Screening -Recognition -Evidence-based management	RCC

Headaches	-Primary headache and related syndromes - Tension headache - Migraine - Cluster headache -Secondary headaches - Space occupying lesions - Pseudotumor cerebri - Thunderclap headache - Trigeminal neuralgia	-Etiology -Clinical manifestation -Diagnostic workup -Differential diagnosis -Management	AHD OBL RCC
CNS infections	-Meningitis - Viral meningitis - Bacterial meningitis -Focal CNS infections - Brain abscess - Spinal epidural abscess -Encephalitis	-Etiology -Clinical manifestation -Differential diagnosis -Diagnostic workup -Management -Complication -Prevention	AHD OBL RCC
Stroke	-Transient ischemic attack -Ischemic stroke -Hemorrhagic stroke -Dural sinus venous thrombosis	-Etiology -Risk factors -Clinical manifestation -Lesion localization -Diagnostic workup -Complications -Management -Prevention	AHD OBL RCC DCC
Mental and behavioral disorders	-Depression -Anxiety disorders -Bipolar disorders -Somatoform disorders -Eating disorders	-Clinical manifestation -Differential diagnosis -Diagnosis -Management	AHD CBL
Toxicology and drug overdose	-Common drug overdose -Paracetamol overdose -Antidepressants	-Recognition -Initial stabilization -Management	AHD RCC

	-Benzodiazepines -Opiates -Alcohol -Heroin -Cocaine -Cyanide -Carbon monoxide poisoning -Organophosphate poisoning -Heavy metal poisoning: - Lead - Mercury - Copper - Arsenic	-Prevention	
Perioperative management of common medical conditions		-Identification of risk factors -Assessment -Patient monitoring -Recognition -Immediate management	RCC AHD

AHD: academic half-day activities; CBL: clinic-based learning; CNS: central nervous system; COPD: chronic obstructive pulmonary disease; DCC: didactic centralized component; G6PD: glucose-6-phosphate dehydrogenase; GERD: gastroesophageal reflux disease; HELLP: hemolysis elevated liver enzymes, low platelet count; HSV: herpes simplex virus; ILD: interstitial lung disease; OBL: on-call-based learning; RCC: rotational component of the curriculum; OBL: on-call-based learning; SLE: systemic lupus erythematosus

EMERGENCY MEDICINE ROTATION

DURATION: A minimum of 8 weeks' rotation at the junior level (R1–R2)

DESCRIPTION:

Emergency medicine rotation is a mandatory rotation for all residents. Residents on rotation in emergency departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of emergency conditions affecting adolescents and adults, which are unique to emergency medicine but relevant to the internal medicine physician's subsequent practice. However, initial evaluation and management of patients with minor injuries and problems related to other specialties but closely related to internal medicine specialties, such as gynecology, is practically useful. Residents should practice progressive responsibility and self-directedness in dealing with patients, including those with multiple comorbidities, and their families.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list was created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

Residents on rotation in emergency departments should improve their general knowledge and skills in preventing, diagnosing, and treating emergency medical conditions, as outlined below:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of medical emergency conditions affecting adolescents and adults.
- Complement internal medicine residents' training in areas that are unique to emergency medicine but relevant to the internal medicine physician's subsequent practice.
- Develop competencies in the management of minor wound care; injury evaluation; and the assessment of common eye, ear, nose, and throat conditions. Develop competencies in the management of minor musculoskeletal injuries and application of clinical decision rules in management
- Gain experience and competencies in the outpatient management of common gynecological disorders

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Chest pain	-Acute coronary syndromes (STEMI, NSTEMI, and unstable angina) -Chronic stable angina -Acute pericarditis -Aortic dissection -Costochondritis -Esophageal dysmotility -Pulmonary embolism -Pneumothorax -Chest infections	-Etiology -Clinical features -Classification -Pathophysiology -Risk factors -Pretest probability for IHD -Diagnosis -Acute management -Complications	RCC, DCC, AHD
Acute dyspnea	-Acute decompensated heart failure -Bronchial asthma -COPD -Pulmonary embolism -Pneumothorax -Toxic inhalation	-Etiology -Diagnosis -Acute management	AHD OBL
Palpitations	• **Supraventricular arrhythmias** - Sinus node re-entrant tachycardia - Atrial tachycardia - Atrial fibrillation - Atrial flutter - AVRT - AVNRT • **Ventricular arrhythmia** - Ventricular tachycardia - Ventricular flutter - Ventricular fibrillation - Bradycardias - Sick sinus syndrome - AV blocks	-Etiology -Diagnosis -Acute management	OBL AHD
Syncope and dizziness	-Neurally mediated syncope -Cardiogenic syncope -Unexplained syncope	-Etiology -Diagnosis -Acute management	OBL AHD
Hypertensive crisis	-Urgent hypertensive crisis -Emergency hypertensive crisis	-Recognition -Acute management	OBL AHD
Shock	-Hypovolemic shock -Cardiogenic shock -Distributive shock -Combined shock	-Definition -Diagnosis -Pathophysiology -Acute management	OBL RCC AHD
Gastrointestinal bleeding	-Upper GI bleeding -Lower GI bleeding	-Recognition -Etiology -Acute management	OBL AHD

Acute abdominal pain	-Peptic ulcer disease -Peritonitis -Pancreatitis -Ischemic bowel syndrome -Ruptured viscus	-Etiology -Diagnosis -Acute management	OBL AHD RCC
Glucose metabolism disorders	-Hypoglycemia -Diabetic ketoacidosis -Hyperosmolar nonketotic state	-Definitions -Recognition -Precipitating factors -Acute management	OBL AHD RCC
Water and electrolyte disorders	-Sodium disorders -Potassium disorders -Calcium disorders	-Definition -Recognition -Acute management	OBL RCC AHD
Acid-base imbalance	-Metabolic and respiratory acidosis -Metabolic and respiratory alkalosis	-Etiology -Recognition -Acute management	OBL AHD
Toxic ingestion and exposure	-Drug overdose -Paracetamol overdose -Antidepressants -Benzodiazepines -Opiates -Alcohol -Heroin -Cocaine -Cyanide -Carbon monoxide poisoning	-Recognition -Acute management	OBL AHD RCC
Altered mental state	-Stroke -CNS infection -Epilepsy -Metabolic causes	-Etiology -Diagnosis -Acute management	OBL AHD
Headaches	-Tension -Migraine -Cluster -Intracranial hypertension	-Etiology -Diagnosis -Management	OBL AHD
Environmental injury	-Cold- and heat-related injuries	-Recognition -Acute management	AHD
Burns	-Fire burns -Chemical burns	-Recognition -Acute management	OBL
Minor injuries	-Wounds and lacerations -Extremities injuries -Sport injuries	-Recognition -Acute management	OBL
Ear, nose, and throat disorders	-Otitis media -Otitis externa -Pharyngitis and tonsillitis	-Diagnosis -Management	OBL
Genitourinary	-UTI	-Diagnosis	OBL

conditions	-Renal colic	-Acute management	
Gynecological and obstetric conditions	-Essential hypertension -Pregnancy-induced hypertension (pre-eclampsia, eclampsia) -Pelvic inflammatory disease	-Diagnosis -Management	OBL

AHD: academic half-day activities; AV: atrioventricular; AVNRT: atrioventricular nodal re-entrant tachycardia; AVRT: atrioventricular reciprocating tachycardia; CBL: clinic-based learning; CNS: central nervous system; COPD: chronic obstructive pulmonary disease; DCC: didactic centralized component; GI: gastrointestinal; IHD: ischemic heart disease; OBL: on-call-based learning; RCC: rotational component of the curriculum; UTI: urinary tract infection

CRITICAL CARE MEDICINE ROTATION

DURATION:
A minimum of 8 weeks' rotation at the junior level (R1–R2)
A minimum of 4 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:
The critical care medicine rotation is a mandatory rotation for all residents. Residents on rotation in critical care medicine departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of critical conditions that affect adolescents and adults and are sufficiently severe to require hospitalization and treatment in a medical intensive care unit. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to collaborate well with other critical care staff, caring for patients with multiple comorbidities. Critical care medicine deals with life-threatening single or multiple organ failure and is multidisciplinary in its approach. Therefore, the primary physician must be able to coordinate the efforts of subspecialists and a number of specialized ancillary support personnel.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:
The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of critical conditions affecting adolescents and adults.
- Develop competencies in the basic skills required for the diagnosis and management of a broad range of critical medical conditions that affect adolescents and adults and are sufficiently severe to require hospitalization and treatment in the medical intensive care unit.
- Learn to assess patients' needs with respect to ward versus ICU admission via their responsibilities as admitting residents.
- Learn and begin to practice lifelong learning behaviors and develop the attitudes and skills necessary to be a leader and coordinator of an increasingly complex health delivery team via demonstrated practice-based learning and systems-based practice.

- Perform the procedures shown in Table 3 in a safe and competent manner including where appropriate:
  - Recognition of indications and contraindications
  - Obtaining informed consent
  - Ensuring patient comfort, privacy, and adequate pain control
  - Documentation
  - Postprocedure follow up and handover
- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Judiciously use common monitoring systems and techniques available in the ICU

Presenting Problem	- Underlying Key Condition	- Primary Focus in Learning	Venue
Systemic inflammatory response syndromes (including sepsis)	- Septicemia and septic shock - Acute pancreatitis - Vasculitis - Burn - Massive thromboembolism - Surgery	- Identification - Diagnosis - Evidence-based management - Early directed-goal therapy	DCC AHD
Shock	- Cardiogenic shock - Distributive shock - Hypovolemic shock - Adrenal insufficiency	- Etiology - Diagnostic approach - Hemodynamic assessment - Categorization of shock syndromes - Management	DCC AHD RCC
Respiratory failure	- COPD - Severe acute bronchial asthma - Hypoventilation syndromes - Acute respiratory distress syndrome	- Etiology - Diagnosis - Acute versus chronic - Acute and chronic management - Principles of mechanical ventilation - Prevention - Complication	AHD RCC
Toxic ingestion and exposure	- Drug overdose - Paracetamol overdose - Antidepressants - Benzodiazepines	- Recognition - Assessment - Clinical features - Mechanism of toxicity	AHD

	- Opiates - Alcohol - Heroin - Cocaine - Cyanide - Carbon monoxide poisoning	- Management	
Organ donation	- Cadaver unrelated donors - Heart - Kidney - Liver - Cornea	- Principles - Indications - Contraindications - Complications - Related ethical issues - Management	RCC DCC
Others **ICU monitoring**	- ECG monitor - Gas monitor - Invasive hemodynamic monitor - Intracranial pressure monitor	- Recognition - Limitations - Indications - Contraindications - Understanding of the correct use of drugs and therapies within the ICU	RCC

AHD: academic half-day activities; CBL: clinic-based learning; COPD: chronic obstructive pulmonary disease; DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum ICU: intensive care unit

CARDIOLOGY/CORONARY CARE UNIT ROTATION

DURATION:

A minimum of 8 weeks' rotation at the junior level (R1–R2)
A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:

The cardiology rotation is a mandatory rotation for all residents. Residents on rotation in cardiology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of cardiology conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as problems that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients, including those with multiple comorbidities, and their families.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and a guide with which to further their learning.

OBJECTIVES:

The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of cardiovascular conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent

- Ensuring patient comfort, privacy, and adequate pain control
- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and their families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Disorder	Underlying Key Condition	Primary Focus in Learning	Venue
Cardiopulmonary resuscitation	- BLS and ACLS	- Perform BLS and ACLS as per protocol	Courses AHD
Angina	- Chronic stable angina - Acute coronary syndromes (STEMI, NSTEMI, and UA)	- Definition - Clinical features - Assessment of pretest probability - Risk factors - Diagnosis - Risk stratification (TIMI scoring) - Complications - Acute management - Understand the indications of invasive management including percutaneous coronary intervention and coronary artery bypass grafting - Chronic management - Prevention - Understand the pharmacology of inotropes, vasopressors, and vasodilators and demonstrate appropriate selection of the use of these agents in patients presenting with acute cardiac disease - List the indications and contraindications for intra-aortic balloon counter pulsation and understand the mode of action and potential complications	AHD OBL CBL RCC

		- List the driving restrictions for patients following ACS	
Myocardial disorders	- Heart failure	- Definition - Pathophysiology - Etiology - Classification - Clinical features - Diagnosis - Precipitating factors - Complications - Evidence-based acute and chronic management - Device management - Prevention	AHD RCC CBL OBL
Heart valve disorders	- Aortic stenosis - Aortic regurgitation - Mitral stenosis - Mitral and tricuspid Regurgitation - Medical management of prosthetic valves	- Etiology - Clinical features - Pathophysiology - Acute versus chronic valve regurgitation - Diagnosis - Complications - Prevention and prophylaxis - Management	AHD RCC OBL CBL
Cardiac rhythm disorders	- Supraventricular arrhythmias: - Atrial extrasystole - Sinus node re-entrant tachycardia - Atrial tachycardia - Atrial fibrillation - Atrial flutter - AVRT - AVNRT - Ventricular arrhythmias: - Ventricular extrasystole - Ventricular tachycardia - Ventricular flutter - Ventricular fibrillation - Long QT syndrome - Short QT syndrome - Brugada syndrome - Bradycardias	- Recognition - Etiology - Clinical features - Risks - Investigations - Acute and chronic management including device implantation - Classification and complications of antiarrhythmic medication - Understand the principles, indications, and contraindications of active hypothermia in patients with resuscitated cardiac arrest	AHD RCC CBL OBL

	- Sick sinus syndrome - AV blocks		
Pericardial disorders	- Acute pericarditis - Chronic pericarditis	- Etiology - Pathophysiology - Clinical features - Differences between constriction and restrictive cardiomyopathy - Diagnosis - Complications - Acute and chronic management	AHD RCC OBL
Aortic disorders	- Aortic aneurism - Aortic dissection - Coarctation of the aorta - Takayasu's arteritis	- Etiology - Pathophysiology - Diagnosis - Classification - Acute and chronic management - Medical versus invasive management - Indications and contraindications for invasive management - Complications of surgical management - Prevention	AHD RCC OBL
Peripheral vessel disorders	- Acute limb ischemia - Berger's disease	- Screening - Risk factors - Complications - Clinical features - Diagnosis - Management	AHD RCC DCC
Congenital heart diseases in adults	- Hypertrophic cardiomyopathy - Familial dilated cardiomyopathy - Atrial septal defect - Ventricular septal defect - Tetralogy of fallot - Patent foramen ovale - Patent ductus arteriosus - Pulmonary valve stenosis - Bicuspid aortic valve - Coarctation of aorta - Eisenmenger's syndrome	- Risk factors - Mode of inheritance - Recognition - Diagnosis - Complications - Management	AHD RCC
Heart transplantation		- Types - Indications - Contraindications - Indications for referral	AHD DCC

ACLS: advanced cardiac life support; ACS: acute coronary syndrome; AHD: academic half-day activities; AVNRT: atrioventricular nodal re-entrant tachycardia; AVRT: atrioventricular reciprocating tachycardia; BLS: basic life support; CBL: clinic-based learning; DCC: didactic centralized component; MI: myocardial infarction; OBL: on-call-based learning; NSTEMI: non-ST segment elevation; RCC: rotational component of the curriculum; STEMI: ST segment elevation myocardial infarction; TIMI: thrombolysis in myocardial infarction; UA: unstable angina

Important Diagnostic tests

Diagnostic tests and monitoring	- 12-lead ECG - Holter monitor - Events recorder - Exercise ECG test - Pharmacological tests - Echocardiogram - Cardiac CT scan - Cardiac MRI - Coronary angiogram - Electrophysiology	- Knowledge of operating characteristics - Interpretation - Indications - Contraindications - Complications and risks	AHD RCC

AHD: academic half-day activities; CT: computed tomography; ECG: electrocardiogram; MRI: magnetic resonance imaging; RCC: rotational component of the curriculum

PULMONARY MEDICINE ROTATION

DURATION:
A minimum of 8 weeks' rotation at the junior level (R1–R2)
A minimum of 4 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:
Residents on rotation in pulmonary medicine departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of pulmonary conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:
The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of pulmonary conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control
    - Documentation
    - Postprocedure follow up and handover
- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition

- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Disease Category	Underlying Key Condition	Primary Focus in Learning	Venue
Obstructive lung diseases	- Bronchial asthma - COPD - Emphysema	- Etiology - Manifestation - Assessment of severity - Diagnosis - Complications - Acute and chronic management - Prevention	RCC AHD
Restrictive lung disease	- Interstitial lung fibrosis - Hypersensitivity pneumonias - Occupational lung diseases - Sarcoidosis - Lymphangioleiomyomatosis - Bronchiolitis - Shrug Strauss syndrome	- Etiology - Classifications - Manifestation - Diagnosis - Complications - Management - Prevention	AHD RCC
Occupational pulmonary diseases	- Asbestosis - Silicosis - Berylliosis - Byssinosis - Farmer's lungs - Bird fancier's lung - Bagassosis - Others	- Etiology - Manifestation - Differential diagnosis - Complication - Diagnostic workup - Management - Prevention	AHD RCC DCC
Suppurative lung diseases	- Bronchiectasis - Lung abscess	- Etiology - Manifestation - Diagnosis - Complications - Management - Prevention	RCC AHD
Pleural effusion	- Heart failure - Parapneumonic effusion - Empyema - Mesothelioma - Metastasis	- Etiology - Classification - Pathophysiology - Manifestation - Complications - Management	AHD RCC
Lung masses	- Solitary pulmonary nodule - Bronchogenic carcinomas - Metastasis	- Etiology - Manifestation - Diagnostic approach - Management - Prevention	AHD RCC

Sleep apnea syndrome	- Obstructive sleep apnea syndrome - Central sleep apnea syndrome	- Etiology - Screening - Manifestation - Diagnosis - Management - Prevention	AHD RCC DCC
Pulmonary vascular disorders	- Primary pulmonary hypertension - Secondary pulmonary hypertension - Thromboembolic pulmonary hypertension	- Etiology - Pathophysiology - Classification - Manifestation - Risk factors - Diagnosis - Management - Prevention	RCC DCC
Pulmonary vasculitis	- Good Pasteur syndrome - Wegener's granulomatosis	- Etiology - Classifications - Pathophysiology - Manifestation - Diagnosis - Management	RCC DCC
Preoperative pulmonary assessment		- Risk assessment - Management	AHD

AHD: academic half-day activities; CBL: clinic-based learning; COPD: chronic obstructive pulmonary disease; DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum

Important Diagnostic tests

Diagnostic tests in pulmonary medicine	- ABG - PFT - CXR - Chest CT - Sleep study - Bronchoscopy	- Basic principles - Indications - Contraindications - Interpretation	AHD RCC
Mechanical ventilators	- Invasive - Noninvasive	- Basic principles - Modes - Indications - Contraindications - Complications	AHD RCC

ABG: arterial blood gas; AHD: academic half-day activities; CT: computed tomography; CXR: chest X-ray; PFT: pulmonary function tests; RCC: rotational component of the curriculum

GASTROENTEROLOGY ROTATION

DURATION:

A minimum of 8 weeks' rotation at the junior level (R1–R2)
A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:

Residents on rotation in gastroenterology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of gastroenterology conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of gastroenterology conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control

- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Key Category of Disease	Underlying Key Condition	Primary Focus in Learning	Venue
Upper GI bleeding	- Peptic ulcer disease - Esophageal varices - Lower GI bleeding	- Etiology - Pathophysiology - Diagnosis - Acute and chronic management - Prevention	AHD RCC
Epigastric pain/dysphagia	- Gastric ulcer - Duodenal ulcer - Gastroesophageal reflux	- Etiology - Pathophysiology - Manifestation - Diagnosis - Complications - Management - Prevention	RCC DCC
Jaundice	- Acute hepatitis - Chronic hepatitis - Autoimmune hepatitis - Cholestatic liver diseases - Nonalcoholic fatty liver - Fatty liver in pregnancy - Biliary obstruction - Hepatoma	- Etiology - Pathophysiology - Manifestation - Diagnosis - Complications - Management - Prevention	AHD RCC DCC
Inflammatory bowel diseases	- Crohn's disease - Ulcerative colitis	- Risk factors - Manifestation - Complication - Diagnosis - Management including surgical intervention - Prevention of complication	RCC AHD
Malabsorption	- Coeliac disease - Tropical sprue - Lactose intolerance - Sucrose intolerance - Fructose intolerance	- Etiology - Pathophysiology - Manifestation - Diagnosis - Complications	AHD RCC DCC

	- Short bowel syndrome - Whipple's syndrome - Bacterial overgrowth - Parasitic infestations - Chronic pancreatitis - HIV - GI tuberculosis	- Management - Prevention	
Colonic and anorectal diseases	- Irritable bowel syndrome - Colonic polyposis - Colonic cancer	- Risk factors - Manifestation - Diagnosis - Screening - Management - Prevention	AHD RCC DCC
Pancreatic and biliary tree disorders	- Acute and chronic pancreatitis - Gall stones - Ascending cholangitis - Primary biliary cirrhosis - Sclerosing cholangitis - Cholangiocarcinoma	- Etiology - Pathophysiology - Manifestation - Diagnosis - Complications - Management	RCC DCC
Complications of Cirrhosis	- Portal hypertension - Ascites - SBP - Hepatic Encephalopathy - Hepatorenal , hepatopulmonary and portopulmonary syndrome	- Etiology - Manifestation - Diagnosis - Management	RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; GI: gastrointestinal; HIV: human immunodeficiency virus; OBL: on-call-based learning; RCC: rotational component of the curriculum; SBP: spontaneous bacterial peritonitis; TB: tuberculosis

Important diagnostic tests

Diagnostic tests	- Abdominal paracentesis - Upper GI endoscopy - Lower GI endoscopy - ERCP - Liver biopsy - Ultrasound of abdomen - CT scan of abdomen - Barium studies	- Indications - Precautions and contraindications - Interpretation - Postprocedure instruction	RCC

CT: computed tomography; ERCP: endoscopic retrograde cholangiopancreatography; GI: gastrointestinal; RCC: rotational component of the curriculum

NEPHROLOGY ROTATION

DURATION:
A minimum of 8 weeks' rotation at the junior level (R1–R2)
A minimum of 4 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:
Residents on rotation in nephrology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of nephrology conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:
The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of nephrology conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control
    - Documentation
    - Postprocedure follow up and handover
- Document patient findings in medical records in a legible and timely manner

- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Hypertension	- Essential hypertension - Secondary hypertension - Pregnancy-induced hypertension	- Etiology - Classification - Manifestation - Diagnosis - Complications - Evidence-based management	CBL DCC RCC
Acute kidney diseases	- Acute pyelonephritis - Acute glomerulonephritis - Acute interstitial nephritis - Acute tubular necrosis - Contrast-induced nephropathy - Pigmented nephropathy - Thrombotic microangiopathy - Obstructive uropathy	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Chronic kidney diseases	- Diabetes nephropathy - Chronic pyelonephritis - Chronic glomerulonephritis - Chronic interstitial nephritis - Polycystic kidney disease	- Etiology - Classifications - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	RCC DCC
Renal colic	- Renal stones	- Etiology - Diagnosis - Complications - Management - Prevention	RCC DCC
Dialysis	- Hemodialysis - Peritoneal dialysis	- Indications - Contraindications	RCC AHD
Renal transplantation		- Types - Indications for referral - Indications - Contraindications - Complications - Posttransplantation management - Management of rejection - Prevention of rejection	AHD RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum

Important Diagnostic Tests

Diagnostic tests	- Urine analysis - Urine microscopy - Biochemical renal functions - Estimation of GFR - Serology - Ultrasound of kidneys - Radioisotope renogram - CT scan - Kidney biopsy	- Indications - Contraindications - Precautions - Complications - Interpretation	RCC

CT: computed tomography; GFR: glomerular filtration rate; RCC: rotational component of the curriculum

ENDOCRINOLOGY AND METABOLISM

DURATION:

A minimum of 4 weeks' rotation at the junior level (R1–R2)
A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:

Residents on rotation in endocrinology and metabolism departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of endocrinology and metabolic conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representation and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of endocrinology and metabolic conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent

- Ensuring patient comfort, privacy, and adequate pain control
- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Key Category	Underlying Key Condition	Primary Focus in Learning	Venue
Glucose metabolism disorders	- Diabetes mellitus - Diabetic ketoacidosis - Hyperosmolar state - Metabolic syndrome and obesity	- Diagnosis - Prevention of complications - Screening - Lifestyle modification - Dietary counseling - Nonpharmacological and pharmacological management - Prevention	RCC AHD CBL OBL
Thyroid gland disorders	- Hyperthyroidism and thyroid storm - Hypothyroidism and myxedema coma - Goiters - Thyroid cancers	- Etiology - Pathophysiology - Classification - Manifestation - Diagnosis - Complications - Management	CBL DCC RCC
Hyperlipidemia	- Familial - Secondary	- Classification - Manifestation - Diagnosis - Complications - Management - Prevention	AHD RCC DCC
Calcium metabolism disorders	- Hypo- and hyperparathyroidism - Vitamin D deficiency - Osteoporosis	- Etiology - Classification - Diagnosis - Complications - Management	RCC DCC

Pituitary disorders	- Anterior pituitary disorders - Posterior pituitary disorders - Incidental adenomas	- Etiology - Clinical syndromes - Manifestation - Pathophysiology - Diagnosis - Principles of the water deprivation test - Complications - Management	RCC DCC
Adrenal gland disorders	- Adrenal insufficiency - Cushing's syndrome - Hyperaldosteronism	- Etiology - Manifestation - Diagnosis - Screening - Management	RCC DCC
Polyglandular disorders	- MEN	- Classifications - Pathophysiology - Manifestation - Management	RCC DCC
Hirsutism	- Polycystic ovary syndrome - Congenital adrenal hyperplasia - Cushing's syndrome - Acromegaly - Von Hippel-Lindau syndrome - Drugs	- Etiology - Pathophysiology - Manifestation - Diagnosis - Management - Prevention	RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; MEN: multiple endocrine neoplasia; OBL: on-call-based learning; RCC: rotational component of the curriculum

Important diagnostic tests

Diagnostic tests	- Fasting blood sugar - Random blood sugar - HgA1C - Serum and urine for ketones - Serum osmolality - Ultrasound of thyroid, parathyroid, and adrenal glands - CT scan of pituitary and adrenal glands - Hormonal assays - Dynamic endocrine tests	- Indications - Contraindications - Utility - Interpretations	CBL RCC AHD

AHD: academic half-day activities; CBL: clinic-based learning; CT: computed tomography; HgA1C: glycated hemoglobin; RCC: rotational component of the curriculum

HEMATOLOGY ROTATION

DURATION:
A minimum of 8 weeks' rotation at the senior level (R3–4)

DESCRIPTION:
Residents on rotation in hematology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of hematology conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide senior residents (R3–R4) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:
The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of hematology conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control
    - Documentation

- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Key Category	Underlying Key Condition	Primary Focus in Learning	Venue
Bleeding disorders	- Congenital bleeding disorders - Hemophilia A and B - Von Willebrand disease - Acquired bleeding disorders - Coagulopathy due to liver disease - Disseminated intravascular coagulopathy - Vitamin K deficiency - Thrombocytopenia - Thrombocytosis - Thrombasthenia	- Overview of normal hemostasis - Classification - Etiology - Manifestation - Complications - Diagnosis - Acute and chronic management	RCC AHD CBL OBL
Thrombosis	- Venous thrombosis (DVT and pulmonary embolism) - Thrombophilia - Congenital - Acquired	- Risk factors - Manifestation - Workup for thrombophilia - Management	CBL DCC RCC
Lymphoma	- Hodgkin's lymphoma - Non-Hodgkin's lymphoma	- Classification - Manifestation - Staging - Diagnosis - Management	AHD RCC DCC
Leukemia	- Acute lymphocytic leukemia - Acute myeloplastic leukemia - Chronic lymphocytic leukemia - Chronic myeloid leukemia - Hairy cell leukemia - T-cell prolymphocytic leukemia	- Etiology - Classification - Manifestation - Diagnosis - Prognosis - Management - Complications of therapy	RCC DCC

Myelomas	- Multiple myeloma - Waldenström macroglobulinemia - Solitary plasmacytoma - Amyloidosis	- Manifestation - Diagnosis - Prognosis - Management	RCC DCC
Transfusion	- Types of transfusion	- Indications - Preparation - Contraindications - Complications	RCC DCC
Bone marrow transplantation	- Types	- Indications - Contraindications - Complications - Posttransplantation management - Management of complications	RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; DVT: deep vein thrombosis; OBL: on-call-based learning; RCC: rotational component of the curriculum

Important diagnostic tests

Diagnostic tests	- Complete blood count - Peripheral smears - Serum iron, TIBC, ferritin, vitamin B12, and folate - Coagulation profiles - Coagulation factor assays - Thrombophilia assays - Hemoglobin electrophoresis - Bone marrow aspiration - Bone marrow biopsy - Lymph node biopsy - Immunocytochemistry - Flow cytometry	- Basic principles - Interpretations	CBL RCC AHD

AHD: academic half-day activities; CBL: clinic-based learning; RCC: rotational component of the curriculum; TIBC: total iron-binding capacity

ONCOLOGY ROTATION

DURATION:

A minimum of 4 weeks' rotation at the senior level (R3–4)

DESCRIPTION:

Residents on rotation in oncology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of oncology conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide senior residents (R3-R4) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for diagnosis and management of a broad range of oncology conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the following table
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals

- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problems/Key Categories	Underlying Key Conditions	Primary Focus in Learning	Venue
Lymphoma	- Hodgkin's lymphoma - Non-Hodgkin's lymphoma	- Classification - Manifestation - Staging - Diagnosis - Management	AHD RCC DCC
Oncology	- Breast cancer - Prostate cancer - Hepatoma - Lung cancer - Colon cancer - Oncological emergencies	- Manifestation - Risk factors - Diagnosis - Prognosis - Management of the disease and its complications - Prevention	RCC DCC
Oncological urgencies and emergencies	- Superior vena cava syndrome - Spinal cord compression - Malignant pleural effusion - Tumor lysis syndrome - Hypercalcemia	- Manifestation - Risk factors - Diagnosis - Management - Prevention	RCC DCC AHD
Complications of cancer therapy	- Hematopoietic complications - Cardiac complications - Pulmonary complications - Genitourinary complications - Sexual complications - Renal complications - Secondary malignancies - Others	- Manifestation - Risk factors - Diagnosis - Management - Prevention	RCC DCC AHD

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; RCC: rotational component of the curriculum; OBL: on-call-based learning

INFECTIOUS DISEASES ROTATION

DURATION:

A minimum of 4 weeks' rotation at the junior level (R1–R2)
A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:

Residents on rotation in infectious diseases departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of infectious conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of infectious diseases affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications

- Obtaining informed consent
- Ensuring patient comfort, privacy, and adequate pain control
- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problems/Major Topics	Underlying Key Conditions	Primary Focus in Learning	Venue
Fever	- Fever of unknown origin	- Definition - Etiology - Diagnostic workup - Management	RCC AHD CBL OBL
Antimicrobial agents	- Antibiotics - Antiviral agents - Antifungal agents - Antiprotozoal agents	- Rational use - Mechanism of actions - Pharmacokinetics - Dosage - Side effects - Precautions - Interactions - Principles of imperative initiation - Monitoring - Prophylaxis - Emergence of drug resistance	CBL DCC RCC
Emergency infections	- Septicemia and septic shock - Meningitis - Encephalitis - Brain abscess - Febrile neutropenia - Postsplenectomy infection	- Etiology - Pathophysiology - Manifestation - Complications - Diagnosis - Management - Prevention	AHD RCC DCC
Fever in patients with cardiac murmur	- Infective endocarditis	- Definition - Pathophysiology - Etiology - Manifestation	RCC DCC

		- Diagnosis - Complication - Medical and surgical management - Prophylaxis	
HIV infection	- AIDS	- Risk factors - Pathophysiology - Manifestation - Complication - Management - Prophylaxis	RCC DCC
Infection in immunocompromised patients	- Bacterial - Viral - Fungal - Protozoan - Mycobacterial - Opportunistic infections	- Etiology - Manifestation - Diagnosis - Management - Complications - Prevention	RCC DCC
Fever in diabetes		- Diagnosis - Management - Prevention	RCC DCC
Hospital acquired infection	- Clostridium difficile - MRSA - VRE - ESBL	- Etiology - Manifestation - Diagnosis - Management - Prevention	RCC DCC
Tuberculosis	- Pulmonary - Extra pulmonary - Active vs. latent - Primary vs. secondary - Multidrug resistance	- Etiology - Risk factors - Pathophysiology - Manifestation - Complication - Management - Prevention	RCC DCC
Fungal infection	- Histoplasmosis - Blastocytosis - Cryptococcus - Mucormycosis	- Pathophysiology - Manifestation - Diagnosis - Complication - Management - Prevention	RCC DCC
World health issues	- Emerging infections - Geographic infections - Bioterrorism - Pandemic preparation	- Epidemiology - Transmission - Prevention - Notification of public health infection control - Management	AHD RCC DCC
Infection control	- Principles of infection	- Epidemiology	CBL

	control	- Transmission - Prevention - Notification of public health infection control	RCC AHD

AHD: academic half-day activities; AIDS: acquired immunodeficiency syndrome; CBL: clinic-based learning; DCC: didactic centralized component; ESBL: extended-spectrum beta-lactamase; MRSA: methicillin-resistant staphylococcus aureus; OBL: on-call-based learning; RCC: rotational component of the curriculum; VRE: vancomycin-resistant enterococci

Important diagnostic tests

Diagnostic tests	- Gram stain - Acid fast stain - Body fluid cultures - Biopsy - Aspirations - Serological tests - Imaging	- Knowledge of technique - Interpretations - Reliability	CBL RCC

CBL: clinic-based learning; RCC: rotational component of the curriculum

RHEUMATOLOGY ROTATION

DURATION
A minimum of 4 weeks' rotation at the junior level (R1–R2)
A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:
Residents on rotation in rheumatology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of rheumatological conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.
The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:
The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of rheumatological conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses of key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent
    - Ensuring patient comfort, privacy, and adequate pain control

- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Arthritis	- Rheumatoid arthritis - Septic arthritis - Crystal-induced arthropathy - Spondyloarthropathies	- Classification - Manifestation - Diagnosis - Complications - Management	RCC AHD CBL OBL
Systemic autoimmune disorders	- Systemic lupus erythematosus - Progressive systemic sclerosis (scleroderma) - Scleroderma visceral involvement with renal crisis and/or cardiopulmonary involvement - Antiphospholipid antibody syndrome - Idiopathic inflammatory myopathies (PM, DM, inclusion body myositis, and myopathy associated with malignancy) - Sjögren's and sicca syndromes	- Classification - Manifestation - Diagnosis - Complications - Management	CBL DCC RCC
Vasculitis	- Small vessel vasculitis - Good pasture syndrome - Henoch-Schönlein purpura - Churg-Strauss syndrome - Wegener's granulomatosis - Medium vessel vasculitis - Polyarteritis nodosa - Large-vessel vasculitis - Giant cell arteritis	- Etiology - Pathophysiology - Manifestation - Diagnosis - Complications - Acute and chronic management	AHD RCC DCC

	- Takayasu's disease		
Uncommon rheumatology conditions	- Behçet's syndrome - Cogan's syndrome - Relapsing polychondritis - Isolated CNS vasculitis - Osteomalacia - Sarcoidosis - Eosinophilic fasciitis	- Etiology - Classification - Pathophysiology - Manifestation - Complications - Management	RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning; CNS: central nervous system; DCC: didactic centralized component; DM: dermatomyositis; OBL: on-call-based learning; PM: polymyositis; RCC: rotational component of the curriculum

Important diagnostic tests

Diagnostic tests	- Hematological serology - Imaging - Synovial fluid analysis	- Principles - Interpretation - Reliability	CBL RCC

CBL: clinic-based learning; RCC: rotational component of the curriculum

NEUROLOGY ROTATION

DURATION

A minimum of 4 weeks' rotation at the junior level (R1–R2)

A minimum of 8 weeks' rotation at the senior level (R3–R4)

DESCRIPTION:

Neurology rotation is a mandatory rotation for all residents. Residents on rotation in neurology departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of neurological conditions affecting adolescents and adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide senior residents (R3–R4) with a clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives for this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of neurological conditions affecting adolescents and adults
- Demonstrate a thorough understanding of relevant basic sciences including pathophysiology, drug therapy, and the microbial basis of diseases involving the key presenting problems and disease conditions shown in the table below
- Order appropriate and selective investigations and interpret the findings in the context of the patient's problems
- Perform a complete health assessment that includes a focused physical examination and an assessment of the patient's mental state
- Formulate appropriate provisional and alternative diagnoses for key presenting problems and underlying conditions
- Render immediate management to patients who are in need of such care
- Perform the procedures shown in Table 3 in a safe and competent manner, including the following where appropriate:
    - Recognition of indications and contraindications
    - Obtaining informed consent

- Ensuring patient comfort, privacy, and adequate pain control
- Documentation
- Postprocedure follow up and handover

- Document patient findings in medical records in a legible and timely manner
- Proactively communicate and liaise with patients and families regarding the patient's condition, management plan, and disposition
- Respect the roles and responsibilities of other healthcare professionals including nurses, pharmacists, and allied health professionals
- Promote prevention and health maintenance, including dietary factors, lifestyle modification, and smoking cessation, during every consultation
- Develop patient-centered care that values individual and family preferences and societal and religious norms

Presenting Problem/Key Category of Disorder	Underlying Key Condition	Primary Focus in Learning	Venue
Consciousness disorders	- Delirium - Dementia - Coma	- Etiology - Assessment-reduced conscious level - Application of the Glasgow Coma Scale - Examination for brain death - Investigation - Management	RCC
Neurological manifestation of other diseases	- Diabetes - Renal failure - Hepatic disease - Malignancy - Respiratory disorders - Fluid and electrolyte disorders	- Recognition - Diagnosis - Management	AHD RCC
Headaches	- Tension headache - Migraine - Cluster headache - High intracranial hypertension - Trigeminal neuralgia - Thunderclap headache	- Manifestation - Diagnosis - Management - Complication - Prevention	AHD RCC DCC
Stroke and intracranial hemorrhage	- Cerebral infarction - Cerebral hemorrhage - Dural thrombosis - Subarachnoid hemorrhage	- Etiology - Risk factors - Manifestation - Diagnosis	RCC DCC

	- Subdural hemorrhage - Extradural hemorrhage	- Complications - Management - Prevention	
Movement disorders	- Parkinson's disease - Parkinson plus syndrome - Ataxia - Tremor - Chorea - Dystonia - Tardive dyskinesia - Myoclonus - Wilson's disease - Neuroleptic malignant syndrome - Restless leg syndrome	- Etiology - Manifestation and assessment - Diagnosis - Management	RCC DCC
Seizures and epilepsy	- Generalized epilepsy - Localized epilepsy	- Etiology - Manifestation - Diagnosis - Complications - Acute and chronic management	CBL RCC AHD
Paraplegia	- Spinal cord injury - Spinal cord compression - Transverse myelitis	- Etiology - Manifestation - Diagnosis - Management	CBL RCC
Neuromuscular disorders	- Myasthenia gravis - Lambert-Eaton syndrome - Myopathies	- Etiology - Classification - Manifestation - Diagnosis - Management	RCC AHD
Neuropathy	- Mononeuropathy - Polyneuropathy	- Etiology - Classification - Diagnosis - Differential diagnosis - Management	RCC AHD
Demyelinating disorders	- Multiple sclerosis	- Pathophysiology - Manifestation - Diagnosis - Differential diagnosis - Management	RCC
Neuro-oncology	- Intracranial tumors - Primary CNS tumors - Metastasis - Paraneoplastic syndrome	- Etiology - Classification - Manifestation - Diagnosis - Management	RCC DCC

AHD: academic half-day activities; CBL: clinic-based learning; CNS: central nervous system; DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum

Important diagnostic tests

Special neurological tests	- Oculocephalic reflex - Caloric test - Dix–Hallpike maneuver/Tensilon test	- Indications - Contraindications - Utility - Interpretation	AHD RCC
Diagnostic tests	- CT scan - MRI - EEG - EMG - Lumbar puncture - Nerve conduction study - Muscle biopsy - Visually evoked potential - Auditory evoked potential - Lumbar puncture	- Indications - Contraindications - Utility - Interpretation	AHD RCC

AHD: academic half-day activities; CT: computed tomography; EEG: electroencephalography; EMG: electromyography; MRI: magnetic resonance imaging; RCC: rotational component of the curriculum

CLINICAL ELECTIVE ROTATIONS

GERIATRICS ROTATION

DESCRIPTION:

Residents on rotation in geriatric departments must develop all CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of geriatric conditions affecting adults. Residents should focus on undifferentiated patient problems as well as those that emerge in previously diagnosed patients. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list. Needless to say, each presenting problem could involve a number of underlying conditions; the list is created to provide junior residents (R1–R2) with clearer focus during their training. Residents should view the list as representative and use it as a guide in furthering their learning.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of a broad range of geriatric conditions
- Understand the special medical, social, and ethical problems related to the aging process
- Recognize that geriatrics is an interdisciplinary subject area determined more by the functionality of the individual than by chronological age
- Demonstrate clinical knowledge and skills pertinent to the diagnosis and management of common geriatric disorders
- Demonstrate effective consultancy skills in the field of geriatrics
- Demonstrate an ability to incorporate attitudes relating to gender, cultural, and ethnic perspectives into clinical practice, research methodology, and analysis
- Fulfill the specific training objectives as outlined

Assessment of elderly patients

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Ethical issues in elderly patients		- Capacity assessment - Guardianships - Trusteeships - Caregiver burden	CBL RCC
Major geriatric Presentations	- Polypharmacy and drug hazards (drug-drug, drug-disease, and drug-diet interactions) - Delirium - Dementia - Depression - Falls - Incontinence	- Demonstrate an understanding of the pharmacokinetic changes that commonly occur with aging - Demonstrate an ability to modify drug regimens in the elderly - Manifestation - Diagnosis - Management - Prevention	CBL DCC RCC
Assessment of elderly patients	- Alteration of normal physical examination and laboratory investigations - Use of aids	- Define frailty - Apply knowledge and expertise in performing and interpreting the results of a mental status examination - Assessment of basic and instrumental activities of daily living - Assessment of basic mobility skills	RCC CBL OBL

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum

PALLIATIVE CARE ROTATION

DESCRIPTION:

Palliative care is an approach to relieving suffering and improving quality of life for patients (and their families) facing life-threatening illness, via the prevention, assessment, and treatment of pain and other physical, psychosocial, and spiritual problems.

The number of cancer patients is increasing progressively worldwide, as is the case in Saudi Arabia. Therefore, trainees are encouraged to pursue an elective rotation in palliative care in a recognized center. Residents should practice progressive responsibility and self-directedness in dealing with patients and their families and be able to act as primary care providers for patients with multiple comorbidities.

The majority of the conditions and symptoms listed below are covered under different disciplines; however, the list of presenting problems and underlying conditions is to be used as a guide. Residents are expected to attend to any patient that is assigned to him or her, regardless of whether the patient's problem is included in the list.

OBJECTIVES:

The specific objectives of this rotation are as follows:

- Develop all seven CanMEDS core competencies while learning the basic skills required for the diagnosis and management of painful conditions in adolescents and adults
- Provide relief for pain and other distressing symptoms
- Affirm life and regard dying as a normal process
- Intend to neither hasten nor postpone death
- Use a team approach to address the needs, including the need for bereavement counseling, of patients and their families if indicated
- Integrate the psychological and spiritual aspects of patient care
- Offer a support system to help patients to live as actively as possible until death
- Offer a support system to help the family to cope during the patient's illness and their own bereavement
- This will enhance the patient's quality of life and may also influence the course of illness positively

Presenting Problem	Underlying Key Condition	Primary Focus in Learning	Venue
Pain		-Pathophysiology -Assessment -Psychosocial factors -Management -Monitoring -Prevention	CBL RCC AHD
Conditions and symptoms common in incurable and life-threatening diseases	- Hypercalcemia - Mouth problems (mouth ulcers, thrush, and dysphagia) - Anorexia - Weakness - Nausea and vomiting - Dyspnea - Intestinal obstruction - Constipation - Diarrhea - Incontinence - Anxiety - Depression - Restlessness - Delirium syndromes - Malignant effusions and ascites - Lymphedema	-Etiology -Pathophysiology -Diagnosis -Management -Prevention	RCC AHD CBL OBL
Rehabilitation	- Postoperative care - Postradiotherapy care - Postchemotherapy care	- Physical therapy - Occupational therapy - Speech therapy - Swallowing therapy	RCC AHD
End-of-life care	- Home-based care - Inpatient care	- Discuss the discontinuation of anticancer therapy - Discuss the anticipated clinical course - Signs and symptoms of imminent death - Ensure optimum	RCC AHD

	patient comfort and family support	
Death	- Confirming death - Postdeath procedures	AHD

AHD: academic half-day activities; CBL: clinic-based learning; DCC: didactic centralized component; OBL: on-call-based learning; RCC: rotational component of the curriculum

TEACHING AND LEARNING ACTIVITIES

Teaching and learning objectives arise from several teaching activities, which include the following:

A. Didactic centralized components of the curriculum:

1. Daily morning meetings:

a. Morning report

The morning report is a universal component of internal medicine training. Though there is a wide variation in format, attendance, and timing, all residents share the common goal of case presentation for the purposes of educating resident physicians, monitoring patient care, and reviewing management decisions and their outcomes.

The morning report is conducted from Sunday to Thursday mornings each week and lasts for 45–60 min. The team that have been on call the previous night briefly present and discuss all admitted patients with the audience, with an emphasis on history, clinical findings, differential diagnoses, acute management, and future plans. The chief resident or morning report moderator decides the format or theme of the meeting. The meeting should include short cases, long cases, data interpretation, and a topic presentation lasting 5 min.

The objectives of the morning meetings are as follows:

- To educate all attending residents, monitor patient care, and review management decisions and their outcomes
- To develop competence in a short presentation of details regarding all admitted patients in a scientific and informative fashion
- To learn and gain confidence in presenting long cases in a systematic fashion
- To develop appropriate differential diagnoses and suitable management plans
- To present a topic presentation of the disease of interest lasting 5 min

b. Morbidity and mortality conferences

Mortality and morbidity conferences are conducted at least once every 4–8 weeks. The program director and department chairperson assign the task to a group of trainees who prepare and present the cases to all department members. The proceedings are generally kept confidential by law.

The objectives of mortality and morbidity conferences are as follows:

- To focus on the goal of improving patient care and identifying areas of improvement for clinicians involved in case management
- To prevent errors that lead to complications
- To modify behavior and judgment based on previous experience

- To identify system issues, such as outdated policies and changes in patient identification procedures, that may affect patient care

c. Grand rounds/guest speaker lectures

These events are presented by experienced senior staff members from different internal medicine disciplines on a weekly basis. The topics will be selected from core curriculum knowledge. The objectives of the grand rounds are as follows:

- Increase the physicians' medical knowledge and skills and ultimately improve patient care
- Understand and apply current practice guidelines in the field of internal medicine and its branches
- Describe the latest advances and research in the field of internal medicine
- Identify and explain areas of controversy in the field of internal medicine

d. Case presentation

Case presentation is conducted weekly by an assigned resident under the supervision of specialized seniors. The cases presented are those that involve interesting findings, unusual presentation, or difficult diagnosis or management. The objectives of case presentation are as follows:

- Present a comprehensive history and physical examination with details pertinent to the patient's problem
- Formulate a list of all of the problems identified in the patient's history and physical examination
- Develop an appropriate differential diagnosis for each problem
- Formulate a diagnosis and treatment plan for each problem
- Present a follow-up patient's case in a focused, problem-based manner that includes pertinent new findings and diagnostic and treatment plans
- Demonstrate a commitment to improving case presentation skills by regularly seeking feedback regarding presentations
- Record and present data accurately and objectively

e. Journal clubs, critical appraisal, and evidence-based medicine

The journal club meeting is conducted at least once every 4 weeks. The chief resident or program director chooses a new article from a reputed journal and forwards it to one of the senior residents at least 2 weeks prior to the scheduled meeting. The objectives of the journal club are as follows:

- Promoting continuing professional development
- Remaining abreast of current literature
- Disseminating information and building a debate on good practice

- Ensuring that professional practice is evidence based
- Learning and practicing critical appraisal skills
- Providing an enjoyable educational and social occasion

f. Joint specialty meetings (radiology, pathology, and surgery)

Joint specialty meetings involving radiologists, pathologists, or surgeons are conducted once per week and include professionals from subspecialties such as gastroenterology and pulmonary medicine. The objectives of the joint specialty meeting are as follows:

- Provide the knowledge, technical skills, and experience necessary for medical residents to interpret and correlate pathological changes with clinical findings and laboratory dates for procedures such as radiological imaging
- Promote effective communication and share expertise with peers and colleagues
- Promote the development of investigative skills to improve residents' understanding of pathological processes as they apply to both individual patients and the general patient population
- Promote the acquisition of knowledge and provide experience in laboratory direction and management and encourage residents to assume a leadership role in the education of other physicians and allied health professionals

2. Academic half-day activities (AHD)

The academic half day consists of several types of sessions scheduled by the chief resident and program director, is based on previous years' feedback from residents, and includes:

- Basic science
- Emergency lectures
- Communication skills
- Demonstration and practice of procedures
- Clinical problem solving
- Medical research and statistics

This is protected teaching time and attendance is mandatory for all internal medicine residents. The activities are conducted on a weekly basis between 1:00 and 4:00 pm.

a. Emergency and nonemergency topics lectures (Tables 1 & 2)

Lectures concerning emergency and nonemergency conditions are prepared and presented by a senior staff member. The series of topics is repeated annually to ensure adequate attainment.

The objectives of these sessions are as follows:

- Review common emergency and nonemergency situations with respect to diagnosis and management

b. Procedures (Table 3)

Resources:
-New England Journal of Medicine videos:
http://content.nejm.org/misc/videos.dtl
-Standard books or journal articles.
-Stanford 25:
http://stanfordmedicine25.stanford.edu/index.html
-Manikins

Objectives:

- Apply knowledge and technical expertise in performing procedures, interpreting results, and understanding relevant limitations
- Demonstrate effective, appropriate, and timely performance of therapeutic procedures
- Demonstrate evidence-based physical examination skills that are relevant and precise
- Demonstrate procedures on a task trainer
- Learn ultrasound-guided procedures and develop familiarity with general ultrasound technology
- The resident should master the following for each procedure:
  - Indications
  - Contraindications
  - Complications and complication rate
  - Procedural technique
  - Sterile technique
  - Consent for the procedure
  - Reporting complications

c. Approaches to common conditions and symptoms (Table 4)

These are lecture series concerning systematic approaches to common medical conditions, with symptoms prepared and presented by a junior resident during academic half days under the supervision of a specialized senior staff member. These series are repeated annually. The objectives of this activity are as follows:

- Demonstrate diagnostic and therapeutic skills
- Access and apply relevant information to clinical practice

- Practice contemporary, evidence-based, and cost-effective medicine
- Avoid unnecessary or harmful investigations or management

d. Clinical skills (Table 5)

Most clinical skills sessions will be conducted at the bedside. This includes taking history, conducting physical examinations, and communication skills. However, lectures and video demonstrations can be added to academic half-day activities prior to bedside practice. The objectives of the clinical skills session are as follows:

- Recognize the many facets of the doctor-patient relationship and be able to apply a biopsychosocial model to issues in health and medicine
- Master basic interview and communication skills and demonstrate competence in advanced interview and communication skills
- Master basic physical examination skills and be able to perform and interpret focused examinations of the cardiovascular, pulmonary, musculoskeletal, and neurological systems; breasts; and genitalia in men and women
- Exhibit professional behaviors including the demonstration of respect for patients, colleagues, faculty members, and others in all settings
- Help residents to pass clinical exams

e. Communication skills (Table 6)

The competencies for this role are essential for establishing rapport and trust, formulating a diagnosis, delivering information, striving for mutual understanding, and facilitating a shared care plan. Poor communication can lead to undesirable results, and effective communication is critical for optimal patient outcomes. Physicians enable patient-centered therapeutic communication via decision making and effective dynamic interactions with patients, families, caregivers, fellow professionals, and other important individuals.

A series of communication skills lectures concerning common situations is delivered by experienced staff members regularly during academic half days and repeated annually.

f. Medical ethics (Table 7)

Ethical issues are frequently encountered during clinical practice, and discussing medicolegal aspects of care with experts is of paramount importance for better and safer training and practice. A senior staff member will raise a particular medicolegal issue to be discussed interactively with residents during academic half days. The objectives of this activity are as follows:

- Recognize the humanistic and ethical aspects of a career in medicine

- Examine and affirm personal professional moral commitments
- Equip residents with a foundation of philosophical, social, and legal knowledge
- Apply knowledge that has been gained in clinical reasoning and provide residents with the skills required to apply this insight, knowledge, and reasoning to clinical care

g. Data interpretation

A full range of laboratory data encountered during daily practice (e.g., blood tests, arterial blood gas [ABG], electrocardiograms [ECGs], echo pictures, and photographs) is presented during academic half days. A case-based approach is used to assist trainees in digesting and understanding the plethora of investigations that they should be familiar with. All residents are expected to participate actively in this activity. The objectives of the activity are as follows:

- Gain knowledge of the various investigational tools used in internal medicine
- Enhance proper interpretation of different investigational data
- Enhance proper use of investigational tools
- Discuss the advantages and limitations of various investigational tools

h. Research and evidence-based practice (Table 8)

The Saudi Commission for Health Specialties promotes and supports research conducted by trainees. Therefore, residents are expected to participate in annual research projects. The presentation and dissemination of the work produced occurs during formal resident research days held annually at various centers.

These projects are not necessarily required to result in publications or national or international presentations. However, outstanding projects and interested residents are supported and mentored if presentations or publications are appropriate.

The objectives of the research aspect of the internal medicine program are as follows:

- Become familiar with the generation and dissemination of research via oral presentations, poster presentations, and abstract preparation and attend core academic teaching applicable to research including ethics, study design, abstract writing, and presentation skills
- Gain competence in conducting literature reviews, data synthesis and analysis, and interpretation

B. Rotational (practice-based) components of the curriculum:

1. Daily round-based learning

The daily round is a good opportunity to conduct bedside teaching for small groups of residents, usually those involved in caring for patients. The objectives are as follows:

- Document historical and physical examination findings, including complete written databases; problem lists; and focused subjective, objective, assessment, and plan notes according to accepted formats
- Generate differential diagnoses appropriate to the level of training
- Review admission notes, discharge summaries, and medical reports
- Develop evidence-based management plans
- Interpret lab investigation results (e.g., imaging, ECGs, and blood tests)
- Consult with professionals of other disciplines
- Communicate, including discussing risk factors and prevention, with patients and their families
- Discharge and follow-up plans

2. On-call duty-based learning:

All residents are required to undertake a minimum of 8–10 on-call duty shifts, each lasting 8–12 hours, per month

R 1-2

- Elicit a comprehensive history and perform a complete physical examination on admission, record the patient's assessment and a differential diagnosis of medical problems clearly, and initiate the management plan
- Discuss the management plan, including investigations and a treatment plan, with seniors
- Communicate the plan to the nurse assigned to patient care
- Perform the basic procedures necessary for diagnosis and management

R 3-4

- Supervise junior residents' admission notes and orders and discuss/supervise the implementation of proposed management plans
- Supervise junior residents' skills in taking history and conducting physical examinations
- Assist junior residents in interpreting laboratory investigations and performing bedside diagnostic and therapeutic procedures
- Attend to consultations, including those involving emergencies, within and outside the department and participate in outpatient clinics once or twice per week

3. Clinic-based learning (CBL):

R 1-2: (1-2 clinics per week)

- **Residents are strictly prohibited from covering outpatient clinics without supervision**
- Elicit a focused history and perform a physical examination under the supervision of the consultant or senior resident
- Present clinical findings, in brief, to the attending consultant or senior resident
- Discuss differential diagnoses and management plans with attending consultants
- Record patients' assessments, differential diagnoses, and management plans
- Develop communication skills with the attending consultant

R 3–4: (1–2 clinics per week including longitudinal clinics)

- **Residents are strictly prohibited from covering outpatient clinics without supervision**
- Senior residents conduct patient follow up under the supervision of the attending consultant for a prolonged period
- Supervise junior residents' notes and orders and manage attending junior residents
- Record concise notes for inpatients at least three times per week while on call Discuss management plans, including investigations, treatment, and referral to other disciplines, with the consultant
- Discuss the need for specialized procedures with the consultant
- Elicit clinical signs for junior residents
- Interpret and discuss laboratory results with junior residents
- Assess the performance of junior residents in terms of communication skills, focused history taking, and physical examination

4. Self-directed learning:

- Achieving personal learning goals beyond those of the essential core curriculum
- Maintenance of a personal portfolio (self-assessment, reflective learning, and personal development plan)
- Auditing and researching projects
- Reading journals
- Attendance at training programs organized on a regional basis (e.g., symposia, conferences, and board reviews)
- Universal e-learning topics:

  The Saudi Commission for Health Specialties intends to develop an e-learning platform to deliver high value, interdisciplinary topics of the utmost importance to the trainee to ensure that they all receive high quality teaching and develop essential core knowledge. These topics are common to all specialties and are delivered in a modular fashion. At the end of each learning unit, there is an on-line formative assessment. Upon completion of all topics,

trainees undertake a combined summative assessment in the form of context-rich multiple-choice questions (MCQ) in which they must attain minimum competency.

The following are mandatory modules to be completed at each level:

1- **R1: modules 1 and 4**
2- **R2: modules 3 and 5**
3- **R3: modules 2 and 6**
4- **R4: module 7**

Module 1: Introduction

1. Safe drug prescription
2. Hospital-acquired infections
3. Sepsis, systemic inflammatory response syndrome (SIRS), and disseminated intravascular coagulation (DIC)
4. Antibiotic stewardship
5. Blood transfusion

Safe drug prescribing: Upon completion of the learning unit, you should be able to perform the following:

a) Recognize the importance of safe drug prescription in healthcare
b) Describe various adverse drug reactions with examples of commonly prescribed drugs that can cause them
c) Apply the principles of drug–drug interactions, drug–disease interactions, and drug–food interactions in common situations
d) Apply the principles of prescribing drugs in special situations such as renal failure and liver failure
e) Apply the principles of prescribing drugs in elderly, pediatric, pregnant, and lactating patient groups
f) Promote evidence-based, cost-effective prescription
g) Discuss the ethical and legal frameworks governing safe-drug prescription in Saudi Arabia

Hospital-acquired infections (HAI): Upon completion of the learning unit, you should be able to perform the following:

a) Discuss the epidemiology of HAI with special reference to Saudi Arabia
b) Recognize HAI as one of the major emerging threats in healthcare
c) Identify the common sources of and circumstances surrounding HAI

d) Describe the risk factors for common HAIs such as ventilator-associated pneumonia, methicillin-resistant staphylococcus aureus, central line-associated bloodstream infections, and vancomycin-resistant enterococcus
e) Identify the role of healthcare workers in the prevention of HAI
f) Determine appropriate pharmacological (e.g., selected antibiotics) and nonpharmacological (e.g., removal of indwelling catheters) measures in the treatment of HAI
g) Propose a plan to prevent HAI in the workplace

Sepsis, SIRS, DIC: Upon completion of the learning unit, you should be able to perform the following:

a) Explain the pathogeneses of sepsis, SIRS, and DIC
b) Identify patient-related and nonpatient-related predisposing factors of sepsis, SIRS, and DIC
c) Recognize patients at risk of developing sepsis, SIRS, and DIC
d) Describe the complications of sepsis, SIRS, and DIC
e) Apply the principles of management of patients with sepsis, SIRS, and DIC
f) Describe the prognosis of sepsis, SIRS, and DIC

Antibiotic Stewardship: Upon completion of the learning unit, you should be able to perform the following:

a) Recognize antibiotic resistance as one of the most pressing global public health threats
b) Describe the mechanism of antibiotic resistance
c) Determine appropriate and inappropriate use of antibiotics
d) Develop a plan for safe and proper antibiotic use that includes the correct indications, duration, types, and discontinuation
e) Be aware of local guidelines for the prevention of antibiotic resistance

Blood transfusion: Upon completion of the learning unit, you should be able to perform the following:

a) Review the different components of blood products available for transfusion
b) Recognize the indications and contraindications of blood product transfusion
c) Discuss transfusion benefits, risks, and alternatives
d) Obtain consent for specific blood product transfusion
e) Perform the necessary steps for safe transfusion
f) Develop an understanding of the special precautions and necessary procedures during massive transfusions
g) Recognize transfusion-associated reactions and provide immediate management

Module 2: Cancer

6. Principles of cancer management
7. Side effects of chemotherapy and radiation therapy
8. Oncological emergencies
9. Cancer prevention
10. Surveillance and follow-up of cancer patients

Principles of cancer management: Upon completion of the learning unit, you should be able to perform the following:

a) Discuss the basic principles of cancer staging and grading
b) Enumerate the basic principles (e.g., indications, mechanisms, and types) of
    a. Cancer surgery
    b. Chemotherapy
    c. Radiotherapy
    d. Immunotherapy
    e. Hormone therapy

Side effects of chemotherapy and radiation therapy: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the important (e.g., frequent and life- and organ-threatening) side effects of common chemotherapy drugs
b) Explain the principles of monitoring side effects in patients undergoing chemotherapy
c) Describe the measures (pharmacological and nonpharmacological) available to ameliorate the side effects of commonly prescribed chemotherapy drugs
d) Describe the important (e.g., common and life-threatening) side effects of radiation therapy
e) Describe the measures (pharmacological and nonpharmacological) available to ameliorate the side effects of radiotherapy

Oncological emergencies: Upon completion of the learning unit, you should be able to perform the following:

a) Enumerate the important oncological emergencies encountered in both hospital and ambulatory settings
b) Discuss the pathogeneses of important oncological emergencies
c) Recognize oncological emergencies
d) Institute immediate measures when treating patients with oncological emergencies
e) Use an anticipatory manner to counsel patients in the recognition and prevention of oncological emergencies

Cancer Prevention: Upon completion of the learning unit, you should be able to perform the following:

a) Conclude that many major cancers are preventable
b) Identify smoking prevention and lifestyle modifications as major preventable measures
c) Recognize preventable cancers
d) Discuss the major cancer prevention strategies at both individual and national levels
e) Use a proactive manner to counsel patients and families regarding cancer prevention measures including screening

Surveillance and follow up of cancer patients: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the principles of surveillance and follow up for patients with cancer
b) Enumerate the surveillance and follow-up plans for common forms of cancer
c) Describe the role of primary care physicians, family physicians, and similar others in the surveillance and follow up of cancer patients
d) Liaise with oncologists to provide surveillance and follow up for patients with cancer

Module 3: Diabetes and metabolic disorders

11. Recognition and management of diabetic emergencies
12. Management of diabetic complications
13. Comorbidities of obesity
14. Abnormal ECG

Recognition and management of diabetic emergencies: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the pathogeneses of common diabetic emergencies including their complications
b) Identify risk factors for and groups of patients vulnerable to such emergencies
c) Recognize patients presenting with diabetic emergencies
d) Institute immediate management
e) Refer patients to the appropriate subsequent level of care
f) Counsel patients and their families in the prevention of such emergencies

Management of diabetic complications: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the pathogeneses of the important complications of Type 2 diabetes mellitus
b) Screen patients for such complications
c) Provide preventive measures for such complications

d) Treat such complications
e) Counsel patients and families, with special emphasis on prevention

Obesity comorbidities: Upon completion of the learning unit, you should be able to perform the following:

a) Screen patients for the presence of common and important obesity comorbidities
b) Manage obesity-related comorbidities
c) Provide dietary and lifestyle advice for the prevention and management of obesity

Abnormal ECG: Upon completion of the learning unit, you should be able to perform the following:

a) Recognize common and important ECG abnormalities
b) Institute immediate management if necessary

Module 4: Medical and surgical emergencies

15. Management of acute chest pain
16. Management of acute breathlessness
17. Management of altered sensorium
18. Management of hypotension and hypertension
19. Management of upper GI bleeding
20. Management of lower GI bleeding

The following learning outcomes apply to all of the above.

Upon completion of the learning unit, you should be able to perform the following:

a) Triage and categorize patients
b) Identify patients who require prompt medical and surgical attention
c) Generate preliminary diagnoses based on history and physical examination
d) Order and interpret urgent investigations

e) Provide patients with appropriate immediate management
f) Refer patients to the subsequent level of care if required

<u>Module 5: Acute care</u>

21. Preoperative assessment
22. Postoperative care
23. Acute pain management
24. Chronic pain management
25. Management of fluid in hospitalized patients
26. Management of acid-base and electrolyte imbalances

Preoperative assessment: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the basic principles of preoperative assessment
b) Preform preoperative assessment in uncomplicated patients, with a special emphasis on
   i. General health assessment
   ii. Cardiorespiratory assessment
   iii. Medications and medical device assessment
   iv. Drug allergy
   v. Pain relief requirements
c) Categorize patients according to risk

Postoperative care: Upon completion of the learning unit, you should be able to perform the following:

a) Devise a postoperative care plan including monitoring vital signs, pain management, fluid management, medication, and laboratory investigations
b) Handover patients properly to appropriate facilities
c) Describe the process of postoperative recovery
d) Identify common postoperative complications
e) Monitor patients for possible postoperative complications

f) Institute immediate management of postoperative complications

Acute pain management: Upon completion of the learning unit, you should be able to perform the following:

a) Review the physiological basis of pain perception
b) Identify patients who might be in acute pain proactively
c) Assess patients experiencing acute pain
d) Apply the various pharmacological and nonpharmacological modalities available for acute pain management
e) Provide adequate pain relief for uncomplicated patients with acute pain
f) Identify and refer patients experiencing acute pain who may benefit from specialized pain services

Chronic pain management: Upon completion of the learning unit, you should be able to perform the following:

a) Review biopsychosocial and physiological bases of chronic pain perception
b) Discuss the various pharmacological and nonpharmacological options available for chronic pain management
c) Provide adequate pain relief for uncomplicated patients with chronic pain
d) Identify and refer patients experiencing chronic pain who may benefit from specialized pain services

Management of fluid in hospitalized patients: Upon completion of the learning unit, you should be able to perform the following:

a) Review the physiological basis of water balance in the body
b) Assess patients' hydration status
c) Recognize patients who are dehydrated or overhydrated
d) Order fluid therapy (oral and intravenous) for hospitalized patients

e) Monitor fluid status and response to therapy via history, physical examination, and selected laboratory investigations

Management of acid-base and electrolyte imbalances: Upon completion of the learning unit, you should be able to perform the following:

a) Review the physiological basis of electrolyte and acid-base balance in the body
b) Identify diseases and conditions that are associated with or likely to cause acid-base and electrolyte imbalances
c) Correct electrolyte and acid-base imbalances
d) Perform careful calculations, checks, and other safety measures while correcting acid-base and electrolyte imbalances
e) Monitor patient response to therapy via history, physical examination, and selected laboratory investigations

Module 6: Frail elderly patients

27. Assessment of frail elderly patients
28. Mini Mental State Examination (MMSE)
29. Prescribing drugs for elderly patients
30. Care of elderly patients

Assessment of frail elderly patients: Upon completion of the learning unit, you should be able to perform the following:

a) Enumerate the differences and similarities between comprehensive assessments of elderly and other patients
b) Perform comprehensive assessments of a frail elderly patients, with special emphasis on social factors, functional status, quality of life, diet and nutrition, and medication history, in conjunction with other members of healthcare teams
c) Develop problem lists based on the assessment of elderly patients

Mini Mental State Examination: Upon completion of the learning unit, you should be able to perform the following:

a) Review the appropriate use, advantages, and potential pitfalls of the MMSE
b) Identify patients suitable for the MMSE
c) Screen patients for cognitive impairment using the MMSE

Prescribing drugs for elderly patients: Upon completion of the learning unit, you should be able to perform the following:

a) Discuss the principles of prescription for elderly patients
b) Recognize polypharmacy, prescribing cascade, inappropriate dosage, inappropriate drugs, and deliberate drug exclusion as major causes of morbidity in elderly patients
c) Describe physiological and functional decline in elderly patients, which contributes to the increase of drug-related adverse events
d) Discuss drug–drug interactions and drug–disease interactions in elderly patients
e) Be familiar with the Beers criteria
f) Develop rational prescription habits for elderly patients
g) Counsel elderly patients and their families regarding safe medication use

Care of elderly patients: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the factors that should be considered while planning care for elderly patients
b) Recognize the needs and well-being of caregivers
c) Identify local and community resources available for the care of elderly patients
d) Develop individualized care plans for elderly patients, with input from other healthcare professionals

Module 7: Ethics and healthcare

31. Occupational hazards for healthcare workers (HCWs)
32. Evidence-based approach to smoking cessation
33. Patient advocacy
34. Ethical issues: transplantation, organ harvesting, and withdrawal of care
35. Ethical issues: treatment refusal and patient autonomy
36. The role of doctors in death and dying

Occupational hazards for healthcare workers (HCWs): Upon completion of the learning unit, you should be able to perform the following:

a) Recognize common sources of and risk factors for occupational hazards in HCWs
b) Describe common occupational hazards in the workplace
c) Develop familiarity with the legal and regulatory frameworks governing occupational hazards in HCWs
d) Develop a proactive attitude to promoting workplace safety
e) Protect yourself and colleagues against potential occupational hazards in the workplace

Evidence-based approach to smoking cessation: Upon completion of the learning unit, you should be able to perform the following:

a) Describe the epidemiology of smoking and tobacco use in Saudi Arabia
b) Review the effects of smoking on smokers and their family members
c) Use pharmacological and nonpharmacological measures to treat tobacco use and dependence effectively
d) Effectively use pharmacological and nonpharmacological measures to treat tobacco use and dependence in special population groups, such as pregnant women, patients with psychiatric disorders, and adolescents

Patient advocacy: Upon completion of the learning unit, you should be able to perform the following:

a) Define patient advocacy

b) Recognize patient advocacy as a core value that governs medical practice
c) Describe the role of patient advocates in the care of the patients
d) Develop a positive attitude toward patient advocacy
e) Be a patient advocate in conflictive situations
f) Be familiar with local and national patient advocacy groups

Ethical issues: transplantation, organ harvesting, and withdrawal of care: Upon completion of the learning unit, you should be able to perform the following:

a) Apply the key ethical and religious principles governing organ transplantation and withdrawal of care
b) Be familiar with the legal and regulatory guidelines regarding organ transplantation and withdrawal of care
c) Counsel patients and their families in the light of applicable ethical and religious principles
d) Guide patients and their families in making informed decisions

Ethical issues: treatment refusal and patient autonomy: Upon completion of the learning unit, you should be able to perform the following:

a) Predict situations in which patients or their family members are likely to refuse prescribed treatment
b) Describe the concept of the "rational adult" in the context of patient autonomy and treatment refusal
c) Analyze key ethical, moral, and regulatory dilemmas in treatment refusal
d) Recognize the importance of patient autonomy in the decision-making process
e) Counsel patients or family members who refuse medical treatment in the best interest of patients

Role of doctors in death and dying: Upon completion of the learning unit, you should be able to perform the following:

a) Recognize the important role a doctor can play during the dying process

b) Provide emotional and physical care to dying patients and their families

c) Provide appropriate pain management in dying patients

d) Identify suitable patients and refer them to palliative care services

Assessment of academic activities

- Residents will asked to complete an evaluation form (see below)
- These evaluation forms will be reviewed generically by the curriculum committee on an annual basis to inform changes in the curriculum
- Presenters of different academic activities will be evaluated by supervisory staff members (see presenter evaluation) to assist them in improving their presentation skills

TABLE OF TEACHING AND LEARNING ACTIVITIES LINKED TO CanMEDS

ACTIVITY	OBJECTIVES	CanMEDS COMPETENCIES	COMMENTS
DIDACTIC CENTRALIZED COMPONENT OF THE CURRICULUM			
1.MORNING MEETING			
a. Morning report	• To educate monitoring patient care and reviewing management decisions and their outcomes for all attending residents • To develop competence in the short presentation of details of all admitted patients in a scientific and informative fashion • To learn and gain confidence in presenting long case details in a systematic fashion • To develop appropriate differential diagnoses and proper management plans • To present topic presentation regarding the disease of interest lasting 5 min	Manager Medical expert Professional Scholar	The performance of the presenter should be evaluated
b. Morbidity and mortality report	• To focus on the goal of improvement of patient care and identify areas of improvement for clinicians involved in case management • To prevent errors that lead to complications • To modify behavior and judgment based on previous experience • To identify systems issues, such as outdated policies and changes in patient identification procedures, that may affect patient care • The proceedings are generally kept confidential by law	Professional Manager Medical experts	Records of proceedings are kept confidential

c. Grand rounds/guest speaker lectures	• Increase physicians' medical knowledge and skills and ultimately improve patient care • Understand and apply current practice guidelines in the field of internal medicine and its branches • Describe the latest advances in research in the field of internal medicine • Identify and explain areas of controversy in the field of internal medicine	Medical expert Professional	The presenter is a senior staff member
d. Case presentation	• Be able to present a comprehensive history and physical examination with details pertinent to the patient's problem • Formulate a list of all problems identified in the patient history and physical examination • Develop a proper differential diagnosis for each problem • Formulate a diagnosis/treatment plan for each problem • Present a follow-up patient's case in a focused, problem-based manner that includes pertinent new findings and diagnostic and treatment plans • Demonstrate a commitment to improving case presentation skills by regularly seeking feedback regarding presentations • Residents should record and present data accurately and objectively	Medical expert Scholar	Records of proceedings are kept confidential
e. Journal clubs, critical appraisal, and evidence-based medicine	• To promote continuing professional development • Remaining abreast of current literature • Disseminating information and building a debate on good practice • Ensuring that professional practice is evidence based • Learning and practicing critical appraisal skills • Providing an enjoyable educational and social occasion	Medical expert Scholar Health advocate	The presenter is a senior resident under supervision of a senior staff member
f. Joint specialty meetings (radiology, pathology, and surgery)	• Provide the knowledge, technical skills, and experience necessary for medical residents to interpret and correlate pathological changes with clinical findings and laboratory	Medical expert Communicator Collaborator	The resident will present a brief history followed by discussion with senior

	dates for procedures such as radiological imaging • Promote effective communication and share expertise with peers and colleagues • Promote the development of investigative skills to improve residents' understand of pathological processes as they apply to both individual patients and the general patient population • Promote the acquisition of knowledge and provide experience in laboratory direction and management and encourage residents to assume a leadership role in the education of other physicians and allied health professionals	Manager	staff members from another discipline
2. ACADEMIC HALF DAY (AHD)			
a. Lectures on emergency and nonemergency topics	• Review common emergency and nonemergency situations with respect to diagnosis and management • The series of topics will be repeated annually to ensure adequate attainment	Medical expert Scholar	Topics are listed in Tables 1 & 2
b. Procedures	• Apply knowledge and technique expertise in performing procedures, interpreting results, and understanding relevant limitations • Demonstrate effective, appropriate, and timely performance of therapeutic procedures • Demonstrate evidence-based physical examination skills that are relevant and precise • Learn ultrasound-guided procedures • For each procedure, residents should master the following: - Indications - Contraindications - Complications and complication rate - Procedural technique - Sterile technique - Consent for the procedure - Be able to demonstrate procedures on a task trainer	Medical expert Professional Collaborator	Procedures are listed in Table 3 Will be repeated annually Some procedures can be performed unsupervised, supervised, or simply viewed via video

	- Be familiar with ultrasound Technology in general -Reporting complications		
c. Approaches to common conditions and symptoms	• Demonstrate diagnostic and therapeutic skills • Access and apply relevant information to clinical practice • Practice contemporary, evidence-based, and cost-effective medicine • Avoid unnecessary or harmful investigations or management	Medical expert Scholar Professional	The presenters are junior residents The performance of the presenter should be evaluated Conditions and symptoms are listed in Table 4 Will be repeated annually
d. Clinical skills	• Recognize the many facets of the doctor-patient relationship and be able to apply a biopsychosocial model to issues in health and medicine • Master basic interviewing skills and demonstrate competence in advanced interviewing skills • Master basic skills in physical examination and be able to perform and interpret focused examinations of the cardiovascular, pulmonary, musculoskeletal, and neurological systems, breasts, and genitalia of men and women • Exhibit professional behaviors including demonstration of respect for patients, colleagues, faculty members, and others in all settings • Help the resident to pass clinical exams	Medical expert Scholar Communicator Professional	Sessions are listed in Table 5 Will be repeated annually Conducted by a senior staff member
e. Communication skills	• Recognize the many facets of the doctor-patient relationship and be able to apply a	Communicator Professional	See Table 6

	biopsychosocial model to issues in health and medicine • Enable patient-centered therapeutic communication via shared decision making and effective dynamic interactions with patients, families, caregivers, fellow professionals, and other important individuals • Master basic interviewing skills and demonstrate competence in advanced interviewing skills • Exhibit professional behaviors including demonstration of respect for patients, colleagues, faculty members, and others in all settings		Presenters are experienced senior staff members
f. Medical ethics	• Residents should recognize the humanistic and ethical aspects of a medical career • Enable the residents to examine and affirm their personal professional moral commitments • Provide the residents with a foundation of philosophical, social, and legal knowledge • Enable residents to use their knowledge in clinical reasoning and equip them with the interaction skills required to apply this insight, knowledge, and reasoning to human clinical care	Communicator Medical expert Professional	See Table 7 A series of lectures will be conducted by an experienced senior staff member
g. Data interpretation	• Knowledge of the various investigational tools used in internal medicine • Enhance proper interpretation of different investigational data • Enhance proper use of investigational tools • Knowledge of the limitations of the various investigational tools	Medical expert Scholar	Residents should take the initiative and participate actively
h. Research and evidence-based practice	• Become familiar with the generation and dissemination of research via oral presentations, poster presentations, and abstract preparation • To attend core academic teaching applicable to research	Professional Manager Scholar	See Table 8 Experienced senior staff will be involved

	including ethics, study design, abstract writing, and presentation skills • Gain competence in literature review, data synthesis and analysis, and interpretation		
ROTATIONAL (PRACTICE-BASED) COMPONENT OF THE CURRICULUM			
a. Daily round-based learning	• Document historical and physical examination findings according to accepted formats including complete written databases; problem lists; and focused subjective, objective, assessment, and plan notes • Generate differential diagnoses appropriate to the level of training • Review admission notes, discharge summaries, and medical reports • Develop evidence-based management plans • Interpret lab investigation results (e.g., imaging, ECG, and blood tests) • Consult with professionals of other disciplines • Communicate, including discussing risk factors and prevention, with patients and their families • Risk factors counseling • Discharge and follow-up plans	Medical expert Communicator Health advocate Professional	Must be centered on patient care and safety

b. On-call-duty-based learning	**R 1–2** • Elicit a comprehensive history and perform a complete physical examination on admission, record patients' assessments and differential diagnoses of medical problems clearly, and initiate the management plans • Discuss the plan of management, including investigations and treatment plan, with the seniors • Communicate the plan to the nurse assigned to patient care • Perform the basic procedures necessary for diagnosis and management **R 3–4** • Supervise junior residents' admission notes and orders, discuss proposed plans of management, and supervise their implementation • Supervise the junior resident's skills in taking history and conducting physical examinations • Assist junior residents in interpreting laboratory investigations and performing bedside diagnostic and therapeutic procedures • Attend to consultations, including those involving emergencies, within and outside the department and participate in outpatient clinics once or twice per week • Longitudinal clinics (continuous care clinic) in which senior residents follow up patients for prolonged periods and each resident is linked to a consultant	Medical expert Scholar Health advocate Professional	Must be centered on patient care and safety Under supervision of a senior
c. Clinic-based learning	**R 1–2: (1–2 clinics per week)** • Elicit a focused history and perform a physical examination under the supervision of a consultant or senior resident • Present clinical findings, in brief, to the attending consultant or senior resident • Discuss differential diagnoses and management plans with attending consultants or senior residents	Medical expert Communicator Health advocate	Must be centered on patient care and safety Under the supervision of a senior staff member

	• Record patients' assessments, differential diagnoses, and management plans • Learn communication skills from the attending consultant or senior resident **R 3–4: (2–3 clinics per week)** • Supervise junior residents' notes, orders, and manage attending junior residents • Report concise notes for inpatients while on call and at least three times per week • Discuss management plans, including investigations, treatment, and referral to other disciplines, with consultants • Discuss the need for specialized procedures with consultants • Elicit clinical signs for junior residents • Interpret and discuss laboratory results with junior residents • Assess the performance of junior residents with respect to focused history taking, physical examination, and communication skills		
d. Self-directed learning	• Achieving personal learning goals beyond the essential core curriculum • Maintenance of a personal portfolio (self-assessment, reflective learning, and a personal development plan) • Auditing and researching projects • Reading journals • Attendance at training programs organized on a regional basis (e.g., symposia, conferences, and board reviews) • Universal e-learning topics (modules)	Medical expert Scholar Manager Professional	See the recommended e-learning modules, books, journals, and other materials below

Table 1: Emergency topic lectures

Table 1: Suggested emergency topics to be presented in academic half-day activities

TOPIC	PRESENTER	DATE
GENERAL MEDICINE		
Hypertensive emergencies		
Management of drug overdoses including: ○ Acetaminophen ○ Aspirin ○ Tricyclic antidepressants ○ Digoxin ○ Hydrocarbon ○ Alcohols (ethanol, methanol, and ethylene glycol) ○ Opioids ○ Cocaine ○ Benzodiazepines		
GASTROENTEROLOGY		
GI bleeding (upper and lower)		
Hepatic encephalopathy, SBP		
Acute liver failure		
Acute pancreatitis		
Acute cholangitis		
CARDIOLOGY		
Arrhythmias		
Acute coronary syndromes		
Acute heart failure		
Aortic dissection		
Cardiogenic shock		
INFECTIOUS DISEASES		
Infective endocarditis		
Meningitis and encephalitis		
ICU		
ARDS		
Approach to a patient in shock		
PULMONARY		
Pulmonary embolism		
COPD		
Asthma		
Respiratory failure		
Pneumonia		

ENDOCRINOLOGY		
Diabetic ketoacidosis/HONK/hypoglycemia		
Addisonian crisis		
Myxedema coma/thyroid storm		
NEPHROLOGY		
Acute kidney injury		
NEUROLOGY		
Stroke		
Seizures		
RHEUMATOLOGY		
Septic arthritis		
ONCOLOGY		
Febrile neutropenia		
Tumor lysis syndrome		
Malignancy-induced hypercalcemia		
Superior vena cava syndrome		
Spinal cord compression		
Thrombotic thrombocytopenic purpura/hemolytic uremic syndrome		
Sickle cell disease crises		

ARDS: acute respiratory distress syndrome; COPD: chronic obstructive pulmonary disease; GI: gastrointestinal; HONK: hyperosmolar hyperglycemic nonketotic coma; ICU: intensive care unit; SBP: spontaneous bacterial peritonitis

Table 2: Common important “nonemergency” topics

TOPIC	PRESENTER	DATE
GENERAL MEDICINE		
Important issues in geriatrics ○ Falls ○ Acute confusional state ○ Polypharmacy ○ Urinary incontinence/retention ○ Weight loss		
GASTROENTEROLOGY		
Gastroesophageal reflux disease		
Peptic ulcer disease		
Inflammatory bowel disease		
Viral hepatitis		
Autoimmune hepatitis, PSC, PBC		
Metabolic liver disease: NAFLD, Wilson’s disease, hemochromatosis		
Celiac disease and malabsorption		
Irritable bowel syndrome		
Complications of cirrhosis		
CARDIOLOGY		
ECG interpretation		
Pericarditis		
Heart failure		
Atrial fibrillation		
Cardiomyopathy/myocarditis		
Mechanical complications of acute MI		
INFECTIOUS DISEASES		
Brucellosis		
Tuberculosis		
Malaria		
Infection in immunocompromised patients		
PULMONARY		
Interstitial lung disease		
Bronchiectasis		
Sleep apnea		
Chest X-ray and PFT interpretation		
Approach to lung nodule		

Pleural effusion		
ENDOCRINOLOGY		
Thyroid nodule		
Pheochromocytoma		
Hyperaldosteronism		
Cushing’s syndrome		
Dyslipidemia		
Osteoporosis and metabolic bone disorders		
Pituitary gland disorders		
NEPHROLOGY		
End-stage renal disease		
Renal replacement therapy		
Glomerulonephritis		
Polycystic kidney disease		
NEUROLOGY		
Guillain-Barré syndrome		
Polyneuropathy		
Headache		
RHEUMATOLOGY		
Vasculitis		
SLE		
Connective tissue disease		
Rheumatoid arthritis		
ONCOLOGY		
Breast, colon, lung, pancreatic, and nasopharyngeal carcinoma		
HEMATOLOGY		
Acute leukemia		
Chronic leukemia		
Multiple myeloma		
Thalassemia		
Thrombotic thrombocytopenic purpura/hemolytic uremic syndrome		
Sickle cell disease		
Bone marrow transplantation and GVHD		

GVHD: graft-versus-host disease; MI: myocardial infarction; NAFLD: nonalcoholic fatty liver disease; PBC: primary biliary cirrhosis; PFT: pulmonary function tests; PSC: primary sclerosing cholangitis; SLE: systemic lupus erythematosus

Table 3: Procedure list

PROCEDURES TO BE PERFORMED INDEPENDENTLY
○ Venipuncture
○ Nasogastric tube insertion
○ Performing 12-lead ECG
○ Cardiopulmonary resuscitation
○ Arterial access including blood gas sampling
○ Spirometry
○ Blood films for malaria
○ Gram stain
○ Acid fast stain
○ Peripheral blood smear
○ Urine analysis and microscopy
○ Abdominal paracentesis
○ Fundoscopy
○ Lumbar puncture
○ External cardioversion/defibrillator
PROCEDURES TO BE PERFORMED UNDER SUPERVISION
○ Central venous line insertion
○ Thoracocentesis
○ Bone marrow aspiration and biopsy
○ Mechanical ventilation (invasive and noninvasive)
○ Knee joint aspiration and injection
○ Intercostal tube insertion
○ Pericardiocentesis
PROCEDURES TO BE OBSERVED
○ Echocardiography
○ Principles of endocrine dynamic tests

▪Insulin tolerance test ▪Oral glucose tolerance test with growth hormone level ▪Low-dose dexamethasone suppression test ▪Synacthen test ▪Metyrapone suppression test ▪Water deprivation test
○ Exercise ECG testing
○ Flexible and rigid bronchoscopy
○ Upper GI endoscopy
○ Lower GI endoscopy
○ EEG
○ EMG
○ Visual and auditory evoked potentials and CNS imaging
○ Kidney biopsy
○ Plasmapheresis

CNS: central nervous system; ECG: electrocardiogram; EEG: electroencephalography; EMG: electromyography; GI: gastrointestinal

Table 4: “Approach topics” in academic half-day activities

TOPIC	PRESENTER	DATE
Approach to chest pain		
Approach to abdominal pain		
Approach to dyspnea		
Approach to hypertension		
Approach to abdominal pain		
Assessment of nutritional status		
Assessment of confusion and delirium		
Approach to syncope		
Approach to diarrhea (acute and chronic)		
Approach to weight gain and loss		
Approach to jaundice		
Approach to constipation		
Approach to ascites		
Approach to renal failure		
Approach to acid-base disturbance		
Approach to hyponatremia/hypernatremia		
Approach to hypokalemia/hyperkalemia		
Approach to hypocalcemia/hypercalcemia		
Approach to anemia		
Approach to bleeding disorders		
Approach to thrombosis		
Approach to lymphadenopathy		
Approach to splenomegaly		
Approach to thrombocytopenia		
Approach to pancytopenia		
Approach to the management of leukemia patients		

Approach to congestive heart failure		
Approach to pleural effusion		
Approach to respiratory failure		
Approach to hemoptysis		
Approach to pulmonary mass/nodule		
Approach to diabetic emergencies		
Approach to monoarthritis		

Table 5: Clinical Skills

Please refer to the following link: http://stanfordmedicine25.stanford.edu/index.html

CLINICAL SKILL	PRESENTER	DATE
Comprehensive history taking 1		
Comprehensive history taking 2		
General physical examination		
Cardiovascular examination: o Examination of pulses o Examination of JVP o Pericardial examination o Harvey's auscultation of the heart 1 o Harvey's auscultation of the heart 2		
Abdominal examination		
Respiratory examination		
Neurological examination o Higher function testing o Cranial nerve examination 1 o Cranial nerve examination 2 o Motor examination of the upper limbs o Motor examination the lower limbs o Coordination o Sensory examination		
Thyroid examination		

JVP: jugular venous pressure

Table 6: Communication situations:

COMMUNICATION SITUATION	PRESENTER	DATE
○ Dealing with medical errors		
○ Documentation		
○ Breaking bad news		
○ Expressing empathy		
○ Dealing with patient emotions (anger, fear, and sadness)		
○ Cultural diversity		
○ End-of-life discussion		
○ Informed consent		
○ Special needs patients (learning disabilities and low literacy)		
○ Disclosing adverse events		
○ Establishing boundaries		
○ Explaining diagnosis, investigation, and treatment		
○ Involving the patient in decision making		
○ Communicating with relatives and dealing with difficult patients/families		
○ Communicating with other healthcare professionals		
○ Seeking informed consent/clarification for an invasive procedure or obtaining consent for a postmortem		
○ Providing instructions regarding discharge		
○ Providing advice regarding lifestyle, health promotion, or risk factors		

Table 7: Ethical issues in medicine

ETHICAL ISSUE	PRESENTER	DATE
1. Principles of medical ethics		
2. Code of conduct and professionalism		
3. Ethical issues in human reproduction		
4. Ethical aspects of treating patients with STDs/AIDS		
5. Good death		
6. Principles of research ethics		
7. Consent		
8. Truth telling		
9. Confidentiality and patient autonomy		
10. Improving ethical practices in ward setting		
11. Ethics in treating terminally ill patients		
12. Ethics and moral aspects of genetics		
13. Ethics in treating mentally ill patients		
14. Medical negligence and professional misconduct		
15. Ethics of transplantation and organ donation		
16. Principles of resource allocation in healthcare systems		
17. Resource allocation in healthcare systems		

18. Withholding treatment and euthanasia **-Code of conduct and professionalism** **-Ethical issues in human reproduction** **-Ethical aspects of treating patients with STDs/AIDS** **-Good death** **-Principles of research ethics** **-Consent** **-Truth telling** **-Confidentiality and patient autonomy** **-Improving ethical practices in ward settings** **-Ethics in treating terminally ill patients** **-Ethics and moral aspects of genetics** **-Ethics in treating mentally ill patients** **-Medical negligence and professional misconduct** **-Ethics of transplantation and organ donation** **-Principles of resource allocation in healthcare systems**		
19. Professional misconduct and negligence		
20. Ethics in reproduction including abortion		

AIDS: acquired immune deficiency syndrome; STD: sexually transmitted disease

Table 8: Evidence-based medicine and clinical research

TOPIC	PRESENTER	DATE
1. Evidence-based practice definition and applications		
2. Biostatistics		
3. Research methodology		
4. How to start your research project		
5. How to write and publish your paper		

ASSESSMENT

Residents' evaluation and assessment throughout the program is undertaken in accordance with the commission's training and examination rules and regulations. This includes the following:

A. Annual Assessment:

1. Continuous appraisal

This assessment is conducted toward the end of each training rotation throughout the academic year and at the end of each academic year as a continuous means of both formative and summative evaluation.

1.1 Continuous formative evaluation:

To fulfill the CanMEDS competencies based on the end-of-rotation evaluation, the resident's performance will be evaluated jointly by relevant staff members, who assess the following competencies:

1. Performance of the trainee during daily work
2. Performance and participation in academic activities (see the "Evaluation of the presenter by staff supervisor" form below)
3. Performance in 10 to 20 minutes of directly observed trainee–patient interaction. Trainers are encouraged to perform at least one assessment per clinical rotation, preferably near the end of the rotation. Trainers should provide timely and specific feedback to the trainee following each assessment of trainee–patient encounters (Mini Clinical Evaluation Exercise [Mini-CEX] and case-based discussions).
4. Trainee's performance of diagnostic and therapeutic procedural skills. Timely and specific feedback from trainer to the trainee is mandatory following each procedure (direct observation of procedural skills).
5. The CanMEDS-based competencies end-of-rotation evaluation form must be completed (preferably in electronic format), with the signatures of at least two

consultants, within two weeks of the end of each rotation. The program director discusses evaluations with residents as necessary. The evaluation form is submitted to the SCFHS Regional Training Supervisory Committee within four weeks of the end of the rotation.

6. Academic and clinical assignments should be documented on an electronic tracking system **(e-Logbook** when applicable) on an annual basis (*Appendix 1)*. Evaluations are based on accomplishment of the minimum requirements for the procedures and clinical skills, as determined by the program.

1.2 Summative continuous evaluation:

A summative continuous evaluation report is prepared for each resident at the end of each academic year and might also involve clinical or oral examinations, an objective structured practical examination, or an objective structured clinical examination.

2. End-of-year examination:

The end-of-year examination will be limited to R1, R2, and R3 residents. The number of examination items, eligibility, and passing score are established in accordance with the commission's training and examination rules and regulations. Examination details and a blueprint are published on the commission website, *www.scfhs.org.sa.*

B. Principles of Internal Medicine Examination (Saudi Board Examination: Part I)

This examination is conducted in written MCQ format and held at least once per year. The number of examination items, eligibility, and passing score are established in accordance with the commission's training and examination rules and regulations. Examination details and a blueprint are published on the commission website, *www.scfhs.org.sa.*

C. Final In-Training Evaluation Report (FITER)/Comprehensive Competency Report (CCR)

In addition to the local supervising committee's approval of the completion of the clinical requirements (via the resident's logbook), the program directors prepare a FITER for each resident at the end of the final year of residency (R4). This could also involve clinical or oral examinations or completion of other academic assignments.

D. Final Internal Medicine Board Examination (Saudi Board Examination: Part II)

The final Saudi board examination consists of two parts:

1. Written examination

This examination assesses the trainee's theoretical knowledge base (including recent advances) and problem-solving capabilities in the internal medicine specialty; it is delivered in MCQ format and held at least once per year. The number of examination items, eligibility, and passing score are established in accordance with the commission's training and examination rules and regulations. Examination details and a blueprint are published on the commission website, *www.scfhs.org.sa.*

2. Clinical examination

This examination assesses a broad range of high-level clinical skills including data gathering, patient management, communication, and counseling. The examination is held at least once per year, preferably as an objective structured clinical examination (OSCE) in the form of patient management problems (PMPs). Eligibility and the passing score are established in accordance with the commission's training and examination rules and regulations. Examination details and a blueprint are published on the commission website, *www.scfhs.org.sa.*

E. Certification:

A certificate acknowledging training completion will only be issued to the resident upon successful fulfillment of all program requirements. Candidates passing all components of the final specialty examination are awarded the “Saudi Board of Internal Medicine” certificate.

SUGGESTED LEARNING RESOURCES:

- Universal online topics
- Macleod’s Clinical Examination
- Hutchison’s Clinical Methods
- Bates’ Clinical Examination
- Harrison’s Principles of Internal Medicine
- The UpToDate support resource
- The Medical Knowledge Self-Assessment Program (MKSAP)
- The New England Journal of Medicine

http://stanfordmedicine25.stanford.edu/index.html

Appendices

APPENDIX 1 / log book

OBJECTIVES OF THE LOG BOOK:

The objectives of the logbook or (T-Res) system are as follows:

- Maintain records and document all academic activities (e.g., procedures, lectures, journal clubs, meetings, training courses, workshops, symposia, and case presentations) undertaken during the training program
- Assist the resident in identifying his or her deficiencies in specific areas
- Assist the program director/evaluator in documenting the contribution and evaluation of trainees
- Provide the evaluator with guidance regarding appropriate and fair assessment of trainees
- Provide the program director with guidance regarding deficiencies in training

GUIDELINES FOR RESIDENTS:

- Residents are required to maintain log books during the entire training period
- Log book entries concerning recorded activities should be completed on the day on which activities occur
- All entries must be signed by a mentor within one week
- Residents should discuss their training progress, as indicated in the log book, with the mentor and/or program director every month
- Residents should submit their completed log books to the program director at the end of rotations and training, for subsequent submission to the regional supervisory committee
- If a log book is not signed by the program director, the resident will be ineligible for end-of-training certification and final examination

APPENDIX 2/ Evaluation forms

END OF ROTATION EVALUATION FORM

Center:
Residency level:
Name: ___________________________________ **Registration number:** __________________

Rotation: ________________________________ **Period:** _______________________________

	Clear failure (1)	Borderline (2)	Clear Pass (3)	Exceeds expectations (4)	Not applicable
A. Medical Expert					
Basic and clinical knowledge					
1. Understands the basic and clinical science and pathophysiology of common medical illnesses					
2. Understands the clinical presentation, natural history, and prognosis of common medical illnesses					
3. Demonstrates expertise in all aspects of the diagnosis and management of common medical illnesses					
4. Practices contemporary, evidence-based, and cost-effective medicine					
5. Avoids unnecessary or harmful investigations or management					
6. Provides care to diverse communities					
7. Demonstrates appropriate knowledge, skills, and attitudes regarding gender, culture, and ethnicity issues					
8. Completes accurate histories and physical examinations					
9. Formulates appropriate differential diagnoses					
10. Develops an appropriate plan of investigation and interprets the results					
11. Develops a therapeutic plan					
12. Develops a plan of secondary prevention					
13. Demonstrates appropriate clinical judgment					
14. Demonstrates knowledge of medications used, mechanisms of action, clinically relevant pharmacokinetics, indications, contraindications, and adverse effects					
Procedural skills					

15. Understands the indications, contraindications, and complications of specific procedures					
16. Demonstrates mastery of specific procedure techniques					
B. Communicator					
17. Records appropriate progress notes and transfer and discharge summaries					
18. Communicates with junior medical, nursing, and allied health staff in an appropriate manner					
19. Communicates with patients in an appropriate manner					
20. Appropriates communication with patients' families					
21. Establishes therapeutic relationships with patients and their families					
22. Delivers understandable information to patients and their families					
23. Provides effective counseling to patients and their families					
24. Maintains professional relationships with other healthcare providers					
25. Provides clear and complete records, reports, and informed and written consent					
C. Collaborator					
26. Works effectively in a team environment					
27. Is able to work with allied healthcare staff					
28. Is able to work with nursing staff					
29. Is able to work with attending and junior medical staff					
30. Consults with other physicians and healthcare providers effectively					
D. Manager					
31. Participates in activities that contribute to the effectiveness of healthcare organizations and systems					
32. Manages his or her practice and career effectively					
33. Allocates finite healthcare resources appropriately					
34. Serves in administration and leadership roles as appropriate					
35. Uses information technology to optimize patient care, lifelong learning, and other activities					
E.Health advocate					
36. Is attentive to preventive measures					
37. Demonstrates adequate patient education					

	regarding compliance and the role of medication					
38.	Attentive to issues in public health policy					
39.	Recognizes important social, environmental and biological determinants of health					
40.	Demonstrates concern that patients have access to appropriate support, information and services					
41.	Offers advocacy on behalf of patients at practice and general population levels					
F. Scholar						
42.	Attends and contributes to rounds, seminars and other learning events					
43.	Discusses present selected topics in an appropriate manner, as requested					
44.	Demonstrates adequate ability to search literature					
45.	Demonstrates efforts to increase knowledge base					
46.	Accepts and acts on constructive feedback					
47.	Reads around patient cases and takes an evidence-based approach to management problems					
48.	Contributes to the education of patients, house staff, students, and other health professionals					
49.	Contributes to the development of new knowledge					
G. Professional						
50.	Recognizes his or her own limitations and seeks advice and consultation when necessary					
51.	Understands the professional, legal, and ethical obligations of physicians					
52.	Delivers evidence-based care with integrity, honesty, and compassion					
53.	Demonstrates appropriate insight into his or her own strengths and weaknesses					
54.	Shows initiative within the limits of knowledge and training					
55.	Discharges duties and assignments responsibly and in a timely and ethical manner					
56.	Reports facts accurately, including his or her own errors					
57.	Maintains appropriate boundaries in work and learning situations					
58.	Respects diversity in race, age, gender, disability, intelligence, and socioeconomic status					

Total Score	Total score = ____ X 25 = 100% Number of evaluated items =

Program director: _________________________

Comments:

____
____
____
____

I certify that I have read all parts of this evaluation report and discussed the report with the evaluators

Resident name: ______________________________ Signature: ____________________

Evaluator name: _____________________________ Signature: ____________________

Evaluator name: _____________________________ Signature: ____________________

Program director: ____________________________ Signature: _____________________

MINI CLINICAL EVALUATION EXERCISE
(MINI-CEX)

Evaluator name: Assessor position: Date:
Trainee name: Registration no.: Residency level:

Brief summary of the case:

New: Follow up:
Assessment setting:
Inpatient: Ambulatory: ICU: CCU: Emergency department: Others:
Complexity: Low: Moderate: High:
Focus: Data gathering: Diagnosis: Therapy: Counseling:

Assessment:

SCORE FOR TRAINING STAGE									
Questions	**Unsatisfactory**			**Satisfactory**			**Superior**		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Taking history									
Physical examination skills									
Communication skills									
Critical judgment									
Humanistic quality/professionalism									
Organization and efficiency									
Overall clinical care									

Mini-CEX time: Observing: min Providing feedback: min
Evaluator satisfaction with Mini-CEX: Low 1 2 3 4 5 6 7 8 9 High
Trainee satisfaction with Mini-CEX: Low 1 2 3 4 5 6 7 8 9 High

Trainee:

Evaluator:

Remarks

Question	Description
Taking history	Facilitates patients in telling their stories; uses appropriate questions to obtain accurate, adequate information effectively; responds to verbal and nonverbal cues appropriately
Physical examination skills	Follows an efficient, logical sequence; examinations are appropriate for clinical problems; provides patients with explanations; is sensitive to patients' comfort and modesty
Communication skills	Explores patients' perspectives; jargon free speech; open and honest; empathic; agrees management plans and therapies with patients
Critical judgment	Forms appropriate diagnoses and suitable management plans; orders selectively and performs appropriate diagnostic studies; considers risks and benefits
Humanistic quality/professionalism	Shows respect, compassion, and empathy; establishes trust; attends to patient's comfort needs; respects confidentiality; behaves in an ethical manner; is aware of legal frameworks and his or her own limitations
Organization and efficiency	Prioritizes; is timely and succinct; summarizes
Overall clinical care	Demonstrates global judgment based on the above topics

DIRECT OBSERVATION OF PROCEDURAL SKILLS ASSESSMENT FORM

Trainee's name		**Registration no.**	
Observation		Registration no.	
Observed by		Date	
Signature of supervising doctor			

Description	Satisfactory	Unsatisfactory	Comment
Understood the indications for the procedure and clinical alternatives			
Explained plans and potential risks to the patient clearly and in an understandable manner			
Good understanding of the theoretical background, including anatomy, physiology, and imaging, of the procedure			
Good advance preparation for the procedure			
Communicated the procedure plan to relevant staff			
Aware of risks of cross infection and demonstrated an effective aseptic technique during the procedure			
Procedure success or failure was understood in the current setting			
Coped well with unexpected problems			
Skillful and handled patient and tissues gently			

Maintained accurate and legible records including descriptions of problems or difficulties			
Issued clear postprocedural instructions to the patient and/or staff			
Sought to work to the highest professional standards at all times			

ASSESSMENT	
Practice was satisfactory	
Practice was unsatisfactory	

Examples of good practice:
____
____
____

Areas of practice requiring improvement:
____
____
____

Further learning and experience should focus on the following:
____
____
____

Resident Presentation Evaluation by Staff Supervisor

Resident name: ___________________________________ Level: ____________
Staff Supervisor: __________________________________
Date of Presentation: _______________________________
Topic: ____

Please use the following scale to evaluate the presentation:

Very weak	Weak	Acceptable	Good	Very good
1	**2**	**3**	**4**	**5**

Medical Expert	1	2	3	4	5
- Demonstrated thorough knowledge of the topic					
- Presented at the appropriate level and with adequate details					
- Comments (optional)					
Communicator					
- Provided objectives and an outline					
- Presentation was clear and organized					

- Used clear, concise, and legible materials					
- Used effective methods and presentation style					
- Established good rapport with the audience					
Collaborator					
- Invited comments from learners and led discussions					
- Worked with staff supervisor effectively in preparing the session					
- Comments (optional)					
Health advocate					
- Managed time effectively					
- Addressed preventive aspects of care if relevant					
- Comments (optional)					
Scholar					
- Posed appropriate learning questions					
- Accessed and interpreted the relevant literature					
- Comments (optional)					
Professional					
- Maintained patients' confidentiality if clinical material was used					
- Identified and managed relevant conflicts of interest					
- Comments (optional)					

Resident's Evaluation of the Different Components of the Core Curriculum

Resident name: ___________________________________ Level: __________
Staff Supervisor: __________________________________
Date of Session: ___________________________________
Name Session: ____

1. How would you evaluate the value of this session?
1 = Very low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very high
2. How well did this session meet your educational needs?
1 = Not at all, 2 = Slightly, 3 = Moderately, 4 = Very, 5 = Extremely
3. Should this session be continued in the future? Yes No
4. At which level should this session be aimed? ___________
5. At which time of the year should this session be conducted? ___________
6. Have you had an opportunity to practice this skill? Yes No
7. Do you have any suggestions as to how to improve this session?



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